

FLIGHT

&
The AIRCRAFT
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

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EDITORIAL COMMENT.

"Newspapers are an essential part of our war organisation."—
(Sir Auckland Geddes, Minister of National Service.)



THE disclosures made in the Report of the Select Committee on National Expenditure, relative to the waste of public money at Loch Doon, amount to a scandal of the first magnitude. No less a sum than £500,000 has been absolutely thrown away on works which it ought to have been obvious from the first could never be made to serve the purpose for which they were projected. Worse than that, if worse is possible, more than 50,000 tons of material which was urgently required for really useful work was put down in the shape of railways, buildings, and other works which have since become virtual scrap and this at a time when the ordinary business firm or person could not procure enough wood to erect a shelf or sufficient steel to make a gross of

The Loch Doon Scandal.

hairpins without getting a dozen certificates of urgency from the very people who approved of this appalling diversion of the national resources from the purposes of the war.

According to the Report, in the summer of 1916 the War Office decided to establish at Loch Doon a large school for training in aerial gunnery. The principal feature was to be the use of moving targets, running on rails. The Committee deals at some considerable length with the history of the project, from its inception until the time work ceased, after the expenditure of half-a-million of money. They state that the only possible site at Loch Doon on which an aerodrome could be constructed—indeed, the only place where a machine could land without the practical certainty of crashing, was a peat bog on the western shore of the lake, about half a mile by a quarter in area. It was an essential part of the scheme to drain this bog in order to make it serviceable as an aerodrome. Major-General Scott-Moncrieff, the Director of Fortifications and Works, reported adversely on the scheme, which he described as "a very risky measure," and further expressed the decided opinion that its execution ought to be deferred until it was definitely ascertained that no other alternative was possible. The Chief Engineer of the Scottish Command, however, reported favourably on the scheme, and other expert opinions were that "Loch Doon fulfils all our requirements," "Loch Doon could not be bettered." The Director of Fortifications, therefore, did not press his objections, and the work was commenced forthwith. The Report goes on to say:

"A contract for the greater part of the work was made with a large firm of contractors. As many as 3,000 men were employed, of whom about one-half were German prisoners. Roads were re-made and a temporary railway about two and a half miles long laid from Dalmellington towards the lake. Fifty-six miles of pipes were laid to drain the bog. Soil to the depth of 3 inches to 4 inches was spread over a large part of it to form a new surface, and grass seeds were sown. Railways, of standard gauge, were made some miles in length, up and down the hills to the east of the lake, and by the waterside, together with considerable lengths of steel constructions along which it was intended to run by electricity movable targets to be fired at from the air. An electric power-station was constructed and boilers and generators installed. By sluices at the end of the lake, with a new outlet channel cut in the rock, the level of the water was raised 6 feet. Temporary huts were constructed, with accommodation for 1,300 men, together with a lecture hall, a hospital, and other buildings. Large hangars and a seaplane shed were erected also, and a motor-boat dock was constructed. Waterworks and sewage works on the bacterial system were made for a population

of 1,500. In March, 1917, it was decided by the R.F.C. to provide a second aerodrome at Bogton, close to Dalmellington. Five large hangars, with concrete walls and warmed by radiators, were erected there, together with workshops, stores, vehicle sheds, and other technical buildings, and a camp of eighteen large brick huts, each capable of housing thirty men.

"A report of the contractors, prepared in October, 1917, shows that they had handled up to that date 50,000 tons of material, and that 25,000 tons of stones had been put into the roads as well. The works were planned by the Royal Flying Corps on the most generous scale, and with little regard for the expenditure involved. In addition the corps were asking for the construction of a railway from the then rail-head to the south end of the lake. It was ascertained that this would involve the construction of a tunnel of 1,150 feet in length through hard rock, that the cost would be £150,000, and that the traffic would apparently be about four trucks a day. Proposals were also made for a considerable extension of the second aerodrome situated at Bogton."

In January last Major Baird and Sir John Hunter visited the works, and on the strength of their subsequent report the Air Council decided to abandon the enterprise. The comments of the Select Committee are interesting. The Report says:

"The weight of evidence given before our Sub-Committee led them to the clear conclusion that Loch Doon ought never to have been chosen. The absence of landing-places on which an airman could descend in the event of engine stoppage without imperilling his own life and destroying his machine was a very grave drawback which ought to have been obvious from the beginning. As time went on, the disadvantages of the place became more and more plain. The success of the draining of the bog by the shore of the lake, which was to have been completed in three months, was still uncertain when twice that period had elapsed. By the summer of 1917 it should have been quite clear that the climate was unsuitable, that the conditions of air fighting were already changing so quickly that the targets might be out of date before they could be completed, and that the aerodrome would not be fit for use until the following summer, if at all.

"At that time the whole situation ought to have been reviewed, and the authorities should then have acknowledged the mistake that had been made, and have stopped the work. Had this been done, a great part of the waste of money which has occurred would have been obviated. We consider that the failure to do this was even less excusable than the original error in the selection of the site. Instead we find, all through the year 1917, the scheme taking a continually larger shape and fresh expenditure being proposed. The actual work appears to have been well carried out, but practically no limit was set to the expenditure.

"Loch Doon and the country around it will soon return to the solitude and silence from which they were roused by the introduction of thousands of men, employed over a period of fifteen months, as a cost of hundreds of thousands of pounds of public money, on an enterprise which was misconceived from the beginning, and which, even if once begun, ought never to have been continued. Its name will be remembered as the scene of one of the most striking instances of wasted expenditure that our records can show."

There is very little in the way of condemnation which can be added to the remarks of the Committee. The indictment is surely one of the most damning criticisms of incompetence, ineptitude and callous disregard of the public interest that was ever penned. There is only one more thing to be said and that is: Who is to suffer? It would be intolerable that, in the face of the cold, calculated language of a Committee appointed to enquire into the waste of public money which has disfigured the whole conduct of the war, the matter should stay where it is. The exact proportions of blame for the initial decision to use the site, and for the continued prosecution of the work and waste when it was realised that it could never be turned to account, must be decided either by the Air Council or some other competent tribunal and the most drastic action taken in regard to the chief offenders. That men who can make themselves responsible for the sort of thing disclosed should remain

in positions in which they retain the power to fritter away the national resources would be intolerable to the last degree. It would be an even greater scandal than the one for which they themselves have been responsible.

How Man-Power is Wasted.

In our correspondence columns we print a letter from a correspondent which adds one more to the sorry tale of men who have joined the Army under the mistaken impression that their training and abilities in civil occupations would, in this time of Imperial emergency, be turned to the best account in the service of the country. It is the same old story that has been told by a dozen others in the pages of this journal—of a man, a trained and skilled engineer, who joined as a volunteer in order that his skill might be available in his own job, but who has found that he has sacrificed well-paid employment to become, as he puts it, a pusher of brooms and a washer of dishes.

We agree that it is impossible that a certain number of such cases can be avoided. At the beginning of the war we found ourselves without an army, as armies are reckoned now, and one had to be created from a mere nucleus. The first necessity was men for the firing line, and it was these that were provided first and foremost, regardless of what their civil occupations had been. That was right and proper at the time, but we have now been at war for nearly four years and it might have been thought that the haphazard methods of recruiting which had to suffice in 1914 would have been improved upon by the middle of 1918. It is true that they have been slightly improved, but that seems to us to have been the result of natural development, so to say, rather than of settled design evolved by the Army authorities. To them a man apparently remains a man and nothing else. That he may alternatively be a highly skilled engineer or a shopwalker does not seem to have met with official recognition even yet. Of course, the growth of the air service and of mechanical transport has opened up opportunities for skilled men to enlist into a service where their special abilities may—if they are lucky—have scope to manifest themselves, but even so the system in use falls very far short of the ideal, else we should not be so constantly hearing of cases like that of the correspondent whose letter we are discussing. The remedy is obvious—so obvious that we marvel that even the official mind has failed to see it.

Control of Engine Experiments.

An Order has recently been made by the Minister of Munitions, restricting, under the Defence of the Realm Act, experimental work on aircraft engines, except under official control. The Order provides that after the 15th inst., no person may begin or proceed with the experimental construction of any aero engine without a licence from the Minister of Munitions, for which application must be made to the Director-General of Aircraft Production. The applicant must give full particulars of the construction for which the license is required and such further information as the Director-General may require, and must comply with any conditions or restrictions he may impose. For the purpose of the Order "the term experimental construction means any construction which is not under or for the direct purpose

of fulfilling a Government contract, and shall include the preparation of any working drawings, but not the preparation of general arrangement drawings."

The Order under which the experimental construction of aircraft is restricted to license holders is thus carried a step farther. What the exact reason for this is seems to be a little obscure. We can only imagine that it has the two-fold reason that the Air Council desires to keep well abreast of all that is going on in the way of experiment so that no ideas that are new and good may be missed—rather a new outlook, by the way—and that it also desires to save the expenditure of work and material on experiments that have no real ultimate goal of usefulness.

Propaganda in Aeroplane Factories.

A case recently reported in the newspapers, relating to pacifist propaganda in munition factories, reads disquietingly in the light of the methods adopted for dealing with this kind of thing. It appears from the evidence that a handbill, without the imprint of the publisher, relating to a resolution passed by a local trades union branch pledging the members to resist the provisions of the Military Service Acts, had been circulated among the workers in a certain aeroplane factory. Accordingly, proceedings were taken against two men, one the printer, who was charged with printing the leaflet, which, in addition to not bearing the names of the author and printer, had not been submitted to the Press Bureau; and as to the second man for aiding and abetting in the offence. There was no dispute as to the facts. The second defendant, who had distributed the "literature," was described as an anti-militarist, exempted from military service by the nature of his occupation. In the result the latter was fined £50 and 10 guineas costs, and the printer £25.

To our way of thinking, whoever was responsible for drafting the charge against these men was either weak-kneed in his interpretation of the gravity of the offence, or, alternatively, believed that sufficient powers were lacking under which a graver charge could be framed. If it was the former, then we seriously suggest that the Law Officers of the Crown should be invoked to frame an omnibus charge to be applied to such clear cases of sedition as this appears to have been. We believe in calling a spade a spade in these cases. It does not matter that a few men, calling themselves a local branch of some trade union or other should pass hole-and-corner resolutions, but it becomes quite another pair of shoes when their pernicious expressions of individual opinion are used for propaganda purposes. If there are powers to bring any more serious charge than that of printing and circulating unauthorised pamphlets, then they ought to be taken. That people like this exempted anti-militarist should be free to carry on seditious propaganda in a munition factory with no more serious prospect before them than a fine or a term of simple imprisonment is certainly not as it should be.

Allied Aid for Russia.

One of the most enlightened of the Russian revolutionaries, M. Vladimir Burtseff, has addressed a strong appeal to the Allies to come to the aid of Russia. All Russians, he says, except the Bolsheviks, desire the arrival of the Allies in order to regain their

independence. In his appeal, which was published in the Paris *Matin*, he says:—

"We are on the edge of an abyss. To-morrow Germany will find enormous resources in our country. Shall we succeed in defending them by our own efforts? No. The remedy is an appeal to our Allies. We declare to you, 'Come and govern us. Come as friends, and help us to drive out the traitors who are clutching our throats. Restore order and liberty to our country.' Whether our Allies come via Vladivostock, Kola, or Archangel, they will be hailed as comrades and faithful associates in the struggle against the common enemy. Let them help us to form an army, and we will shower all our love on this army, for it will be our sole hope of deliverance.

"If I write these lines, which are an appeal, it is because I am sure that, with the exception of the Bolsheviks, all Russians, Socialist, or *bourgeois*, are of one mind with me. We do not doubt that an Allied army from whatever quarter, will have but one aim, to re-organise Russia, and make her strong and independent."

There can be no question that M. Burtseff is right—that Russia does indeed stand on the brink of an abyss, and that unless the Allies can go to her rescue she must fall into the hands of Germany. The gravity of the position is too apparent to be missed by the most casual observer. It seems to us that there are two aspects of the matter. In the first place, does M. Burtseff really speak for his fellow-countrymen—or for the saner Russian elements—or does he merely voice the feelings of a small minority of the nation? Before we can go on to discuss at all seriously the question of whether or not it is practicable to send help to our late Ally, we must know that such help would be welcomed and that Russia herself would be likely to rise up and assist in the work of her own salvation. As to that, it is obviously impossible to express an opinion in default of the essential knowledge. But it is reasonably certain that the Foreign Offices of the Allied nations are in possession of enough information on this all-important point to be able to form a judgment on the second. If the answer is a negative one, then there is no more to be said, and Russia must be left to work things out along her own lines. But we think it is essential that there should be manifested on the part of the Allies some more serious interest in the immediate affairs of Russia than is discernible at present. There seems to be too much of a popular disposition to regard Russia as a traitor to the cause of the Allies and to rule her out altogether, regardless of the magnificent services rendered to the Allied arms by the Russian armies in the earlier stages of the war. It scarcely matters, however, precisely what view is taken of the question so far as the past is regarded. What does matter is the future. To our way of thinking, the one question that must be decided without a moment's delay is whether—assuming, of course, that Russia desires to be delivered from the German menace—we are to stand by and see her fall into the arms of Germany, or whether we are going to make an effort to keep her, or rather to bring her back to the Western alliance. There can be no two opinions as to which is the wiser policy. Naturally, it all turns on the question of practicability once the other matter of Russia's willingness to accept the assistance of the Allies has been settled. This much is quite certain, that the true path of statemanship is along the road to a closer understanding with Russia than has been possible since the Eastern Empire went mad. Now that there are signs of returning sanity and of a desire to work out her independence in association with the Western Allies, it seems there is at least a clear case for careful examination of all the possibilities.

HONOURS.

Honours for the R.N.A.S.

It was announced in a supplement to the *London Gazette* on May 17th, that the King has been pleased to approve of the award of the following honour to this officer:—

Distinguished Service Order.

Flight Commander R. Leckie, D.S.C., R.N.A.S.

The King has been pleased to approve of the award of the following decorations and medals to officers and men of the Royal Naval Air Service:—

(i.) FOR SERVICES IN MESOPOTAMIA.

Distinguished Service Cross.

Lieut. G. D. Nelson, R.N.A.S.—For the great courage and devotion to duty displayed by him as engineer officer of his detachment. He was untiring in his work, in spite of attacks of malaria and dysentery, and the successful running of the engines was due to him.

Flight Sub-Lieut. J. D. Hume, R.N.A.S. (since killed).—For continuous good patrol work, artillery spotting, feeding Kut-el-Amara, &c., sometimes making three trips a day, under all weather conditions. He invariably displayed great coolness and resource in the face of the enemy, regardless of personal danger.

Bar to the D.S.C.

Flight Lieut. V. G. Blackburn, D.S.C., R.N.A.S.—For services in the advance and retreat from Ctesiphon, when he performed most excellent work.

Flight Sub-Lieut. W. H. Dunn, D.S.C., R.N.A.S.—For conspicuous courage and skill in carrying out an extraordinarily amount of flying, both in sea and land planes. He is invariably cheerful and ready when called on for work.

Distinguished Service Medal.

C.P.O. Mech., 1st Gr., J. F. Armitt, O.N. 343587 (Ch.); C.P.O. Mech., 2nd Gr., J. Rodger, O.N.M. 2435 (Ch.).

The following officers have been mentioned in despatches:—

Wing Commander F. W. Bowhill, R.N.A.S., Flight Lieut. C. B. Gasson, R.N.A.S., Observer Lieut. E. F. Turner, R.N.A.S.

(ii.) MISCELLANEOUS.

Bar to the D.S.C.

Flight Commander C. P. O. Bartlett, D.S.C., R.N.A.S.—For conspicuous bravery and devotion to duty in carrying out bombing raids and in attacking enemy aircraft. On March 28th, 1918, he carried out three bombing raids. Whilst returning from one of these missions he was attacked at a height of about 2,500 feet by three enemy triplanes, and five other scouts. One of these he drove down, attacking it with his front guns, whilst his observer shot down out of control a second. Observing that two of the triplanes were diving on him and converging, he side-slipped his machine away with the result that the two enemy machines collided and fell to the ground together, where they burst into flames. He has carried out very many bombing raids, and brought down several enemy machines, invariably showing the greatest skill and determination.

Flight Lieut. (acting Flight Commander) L. H. Slatter, D.S.C., R.N.A.S.—For distinguished service rendered during a bombing attack on Ostende Seaplane Station on March 26th, 1918, when, in spite of intense anti-aircraft fire and the glare of numerous searchlights, he descended to 400 feet over his objective to drop bombs. Flight Commander Slatter is a leader of unqualified keenness and dash and possessed of exceptional courage and judgment.

"Mentioned in Despatches."

INCLUDED in the list of names of officers, non-commissioned officers and men, serving or who have served under Field-Marshal Sir D. Haig's command during the period September 25th, 1917, to February 24th, 1918, and who are mentioned in his despatch of May 20th for distinguished and gallant services and devotion to duty, are:—

ROYAL AIR FORCE.

Staff.

Major and Bt. Lieut.-Col. (Temp. Brig.-Gen.) J. H. W. Becke, D.S.O., N. and Derby Regt.; Major and Bt. Lieut.-Col. (Temp. Brig.-Gen.) H. R. M. Brooke-Popham, D.S.O., O. and B. L.I.; Major and Bt. Lieut.-Col. (Temp. Brig.-Gen.) L. E. O. Charlton, C.M.G., D.S.O., Lan. Fus.; Major and Bt. Lieut.-Col. (Temp. Brig.-Gen.) F. L. Festing, C.M.G., North'd Fus.; Major and Bt. Col. (Temp. Major-Gen.) J. M. Salmond, C.M.G., D.S.O., R.A.F.; Capt. J. Selwyn. R.A. and Gen. Staff, attached H.Q.

Temp. Capt. B. E. Baker, D.S.O., M.C., Gen. List; Lieut. (Temp. Lieut.-Col.) J. E. A. Baldwin, Hrs.; Capt. (Temp. Lieut.-Col.) A. S. Barratt, M.C., R.A. and H.Q.; R.A.F. Temp. Capt. H. H. W. Bean, Gen. List; Capt. (Temp. Lieut.-Col.) A. V. Bettington, S.R.; Temp. Major E. M. Bettington,

Gen. List and R.A.F.; Capt. (Temp. Lieut.-Col.) H. Blackburn M.C. S.R.; Lieut. (Temp. Major) G. H. Bowman, D.S.O., M.C., R. War. Regt.; Temp. Lieut. P. M. Brambleby, Gen. List; Temp. 2nd Lieut. (Temp. Capt.) E. J. Briscoe, Gen. List; 2nd Lieut. (Temp. Major) T. Bullen, Som. L.I.; 2nd Lieut. (Temp. Capt.) J. D. Campion S.R.; Major A. D. Carter, D.S.O., New Brunswick Regt.; Temp. 2nd Lieut. W. C. Clark, Gen. List; Flight Commander R. J. O. Compston, D.S.C., R.A.F.; Temp. 2nd Lieut. O. G. S. Crawford, Gen. List; 2nd Lieut. (Temp. Capt.) E. F. B. Curtiss, S.R.

2nd Lieut. (Temp. Capt.) R. Donald, S.R.; Lieut. (Temp. Major) W. S. Douglas, M.C., R.F.A. (S.R.); Squadron Commander C. Draper, R.A.F.; Temp. Lieut. T. E. Drowley, Gen. List; Temp. Capt. E. Drudge, Gen. List; Temp. Major J. D. Drysdale, Gen. List; Lieut. (Temp. Major) C. S. Duffus, M.C., S.R.; Lieut. (Temp. Capt.) P. G. Emery, S.R.; Temp. Lieut. W. B. Everton, Gen. List.

Lieut. (Temp. Capt.) W. B. Farrington, D.S.O., N. and Derby Regt.; 2nd Lieut. A. C. Flavell, Mon. Regt.; Lieut. (Temp. Capt.) W. F. N. Forrest, R.F.A. (S.R.); Lieut. C. C. French, R.F.A. (S.R.), attd. Balloon Section.

Capt. (Temp. Major) A. G. R. Garrod, M.C., Leic. Regt.; Lieut. (Temp. Capt.) G. E. Gordon-Duff, Cam. Highrs.; Capt. (Temp. Lieut.-Col.) C. G. S. Gould, R.A. and R.A.F.; Lieut. (Temp. Major) A. Gray, M.C., A. and S. Highrs.

Lieut. (Temp. Capt.) E. W. Havers, S.R.; Lieut. J. R. Hembrough, R.A.F. (S.R.); Temp. 2nd Lieut. J. A. Higham; Gen. List; Lieut. (Temp. Capt.) F. H. Hodgson, S.R.; Capt. (Temp. Major) A. V. Holt, R. Highrs.; Capt. (Temp. Major) A. F. A. Hooper, N. Staff Regt.; Temp. Lieut. A. Howard, Gen. List; Capt. (Tp. Col.) G. B. Hynes, D.S.O., R.A.

Lieut. (Temp. Major) A. W. H. James, M.C., Hrs.; Temp. Capt. E. D. Johnson, Gen. List; 2nd Lt. W. W. Jones, Lond. R.; Hon. Capt. and Qrmer. E. J. Langridge, N. Staff. Regt.; Lieut. (Temp. Capt.) O. Lindquist (S.R.); Lieut. (Temp. Capt.) G. L. Lloyd, M.C., Yeo.; 2nd Lieut. E. E. Lockwood, K.R.R.C.

2nd Lieut. (Temp. Capt.) J. T. B. McCudden, V.C., D.S.O., M.C., M.M., Gen. List; Temp. 2nd Lieut. A. F. McGlashan, Gen. List; 2nd Lieut. (Acting Capt.) A. E. McKeever, D.S.O., M.C. (S.R.); Temp. Capt. F. Maden, Gen. List and R.A.F.; Temp. Lieut. R. G. Meech, Gen. List; Lieut. (Temp. Capt.) T. G. Mellanby (S.R.); Lieut. (Temp. Major) K. D. P. Murray, M.C. (S.R.).

Temp. 2nd Lieut. (Acting Capt.) G. B. Neale, Gen. List; Major A. L. C. Neame, R.E.; Lieut. J. P. Nickalls, R.A.; Temp. Lieut. J. H. O'Connell, Gen. List.

Lieut. (Temp. Capt.) E. A. Packe, O and B. L.I.; Temp. Capt. (Temp. Major) E. B. Palmer, A.S.C.; Capt. H. W. M. Paul, M.C., Middx. Regt.; Temp. Capt. W. R. G. Pearson, Gen. List; Temp. 2nd Lieut. E. Pybus, Gen. List.

Lieut. (Temp. Capt.) J. V. Read (S.R.); Lieut. (Temp. Capt.) J. E. Rendle (S.R.); Temp. Capt. F. X. Russell, R. Mun. Fus.; Capt. C. E. Ryan, M.C., R.F.A.

Temp. Capt. R. C. Scudamore, M.C., Gen. List (killed); Capt. (Temp. Major) J. P. C. Sewell (S.R.); 2nd Lieut. (Temp. Capt.) K. Shelton, E. Kent. Regt. (S.R.) (died of wounds); Bt. Lieut.-Col. (Temp. Brig.-Gen.) G. S. Shephard, D.S.O., M.C., R. Fus. and R.A.F. (killed); Lieut. (Temp. Capt.) S. J. Sibley (S.R.); Lieut. (Temp. Major) W. R. Snow, D.S.O., M.C. (S.R.); Lieut. (Temp. Major) B. E. Sutton, D.S.O., M.C., Yeo.

Lieut. (Temp. Capt.) O. V. Thomas (S.R.); Temp. Capt. F. S. Thomas, Gen. List; Lieut. (Temp. Capt.) B. B. Toms, R. War. Regt. (S.R.); Acting Flight Lieut. G. L. Trapp, Naval Sqn.; Lieut. (Acting Major) J. F. A. Trotter, R.F.A. (S.R.); Temp. Lieut. (Temp. Capt.) T. K. Twist, Gen. List.

Temp. Lieut.-Col. H. A. van Ryneveld, M.C., Gen. List; 2nd Lieut. (Temp. Capt.) R. T. Vernon (S.R.).

2nd Lieut. G. G. Walker, N. Lancs. Regt.; Temp. Capt. H. H. Walmsley, Gen. List; Temp. 2nd Lieut. E. Waterlow, Gen. List; Temp. Capt. A. B. Wiggins, Gen. List; Temp. Major G. L. Wightman, Gen. List; Temp. Capt. P. Worthington, Gen. List; 2nd Lieut. H. N. Young, Gen. List.

21786 Sergt. F. Barry; 17971 Corpl. F. P. Corpe; 13876 Fld. Sergt. F. W. Field; 2355 Temp. S.M. S. J. Guthrie; 113763 Sergt. J. C. Hagan; 8111 Corpl. P. Halliday; 33699 Corpl. J. Harrison; 13864 Flight Sergt. F. C. Jarrett; 107453 Sergt. J. H. Jones; 279 S.M. C. E. King, D.C.M.; 13962 Flight Sergt. G. E. Lee; 6533 Sergt. H. Lovelock; 11592 Sergt. L. E. V. Meazza; 43984 2nd A.M. F. S. Newton, R.G.A.; 12142 Flight Sergt. J. E. O'Shea; 19533 Corpl. E. Parren; 49043 Sergt. J. R. Roberts; 23648 Sergt. H. J. Rose; 113031 Sergt. J. Ryan; 2235 Flight Sergt. G. H. Sidebotham; 34430 Sergt. E. Smith; 45296 Sergt. S. A. Smith; 38361 Corpl. E. Taylor; 8078 Sergt. F. J. Udell; 21835 Sergt. H. Varey.

THE AUSTRIAN BERG SINGLE-SEATER FIGHTER.

200 H.P. AUSTRO-DAIMLER ENGINE.

[While the different types of aeroplanes produced in Germany are fairly well known in this country, owing chiefly to the number of them that have been captured from time to time, our knowledge of the Austrian aircraft industry is more limited. This is partly due to the fact that fewer of them are seen on the western front, Austrian activities in the air being more particularly confined to the Italian theatre of war, where the various types of Austrian machines are probably as well known as are the German on the battle front in France. Also it should be remembered that to a large extent, so far as our knowledge goes, the Austrian industry has been conducted more along the lines of constructing German-designed machines under licence, thus tending to increase output, rather than with an aim to encouraging original design. That home designing has not been altogether stopped in Austria is evident, however, since from time to time one hears of Austrian machines, of makes known not to be German licence productions, being seen by Allied pilots. Among these is the Austrian Berg single-seater fighter. Reports have been received occasionally of this machine, but up to the present nothing definite has been generally known concerning it. Now, however, one of these has been added to the collection in the Enemy Aircraft View Rooms, and by the courtesy of the authorities we are able this week to publish a brief description and an illustration of the Austrian Berg. To the best of our knowledge this is the first description to be published in this country.—ED.]

SIMPLICITY would appear to be the keynote of design in the Austrian Berg single-seater fighter, both as regards mass, or aerodynamic, design and structural design. The machine has every appearance of being designed chiefly with a view to rapidity of production, yet this object has been attained by a studied simplicity of detail rather than by any scamping in workmanship. In fact, although the finish is not, perhaps, as good as on some machines, the workmanship appears everywhere to be really quite good, and the materials employed in the construction are, if anything, better than found on a good many German machines. Whether this is due to a more plentiful supply of the right materials in Austria than in Germany, or whether Austrian inspection is stricter than that obtaining in Germany, is difficult to say, and one can only call attention to the fact without venturing an explanation.

Fundamentally the Austrian Berg is of the single-seater fighter type in which the pilot and top plane are so placed in relation to each other that the wing obstructs the view to a very small extent only. This has been accomplished, not so much by reducing the gap to a smaller proportion of the chord than usual, as by making the body very deep and placing the pilot fairly high inside the body. On closer examination it is found that the extra depth of the body is provided by deepening the turtle back, which forms a much greater proportion of the overall depth than is the case in most machines.

The body proper, which is of the flat-sided variety, is constructed on similar lines to those of the older models of Albatros biplanes, i.e., of *longerons* and struts of fairly small section, the whole being covered with three-ply wood. As distinct from the Albatros, however, there are only four *longerons*, the auxiliary rails halfway up the sides of the latter having evidently been deemed unnecessary by the designer of the Berg. The turtle back, which is different from the majority in that it does not, except in front, cover the whole width of the flat top of the body, but comes to a point just in front of the vertical fin, is of a peculiar section. This may, in the absence of a sketch, best be described by saying that it consists of three curvatures, a convex at the top, a concave halfway down, and again a convex at the bottom. The object, evidently, is to provide stream lining of the pilot's head by having the turtle back deep without, however, obstructing the view to too great an extent by having it very wide. Roughly the configuration is that of a man's head and shoulders.

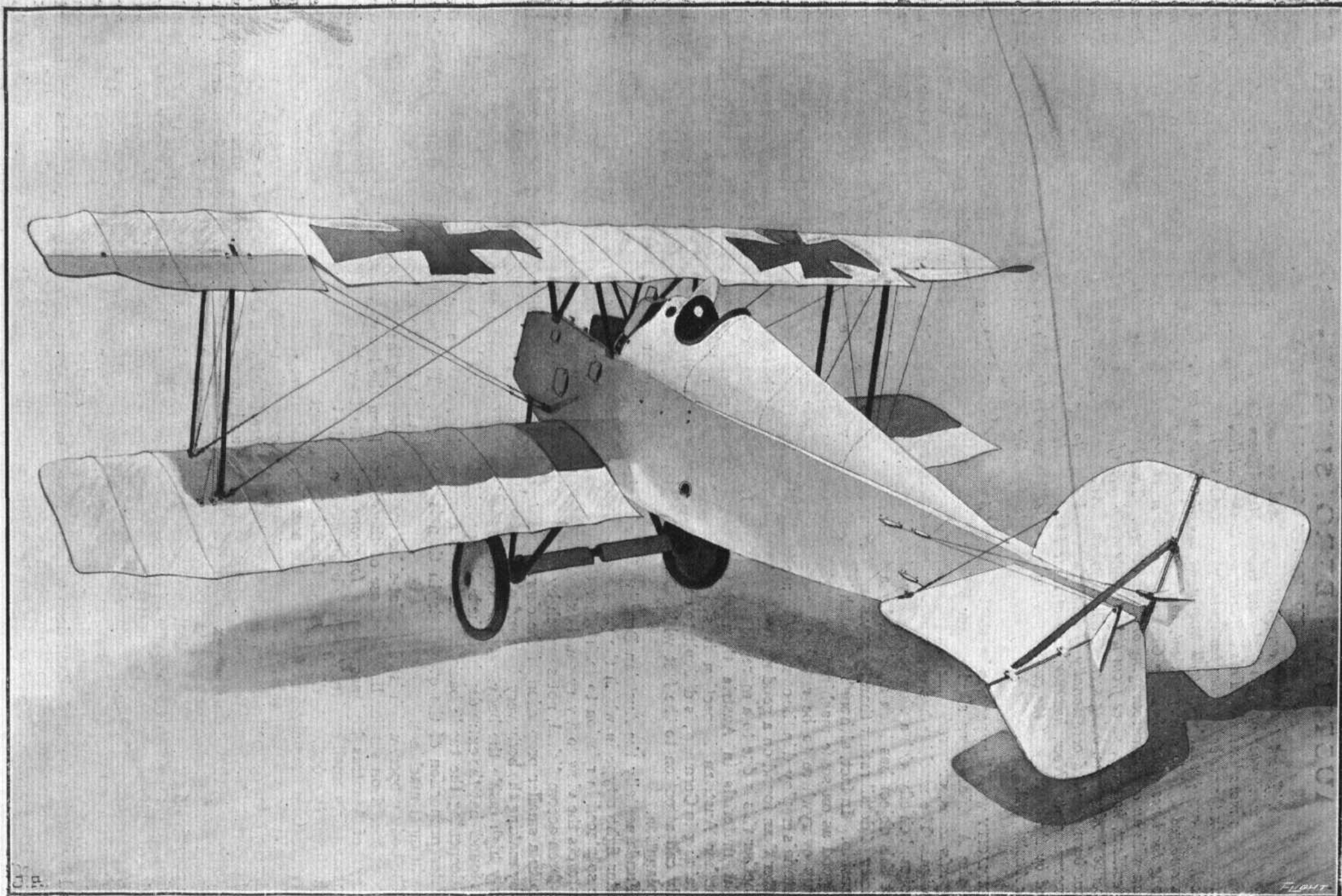
The pilot's cockpit is very comfortable, the deep

top efficiently screening his face while at the same time, owing to the peculiar outline, not obstructing the view to as great an extent as one would imagine. By leaning his head slightly the pilot can easily look past the nose of the machine, so that there is really no "blind" spot beyond a few yards ahead of the machine. The fact that the chord line of the upper wing if projected passes through the pilot's line of vision renders the view forward and upward particularly good. Small circular windows are inserted in the turtle back in front of the pilot, but it appears that the view obtainable through these is of very little practical utility, and the inference is that they are placed there to admit light on to the instrument board rather than to provide direct vision.

The pilot's seat is extremely comfortable, and is provided with arm rests, thus enabling the pilot to rest one arm while working the control lever with the other. For a long flight this makes for comfort. It is only a minor point, it is true, but one nevertheless which is worthy of consideration. On the whole the machine gives the impression that it would be a very comfortable machine to fly, regarded purely from the flying point of view, and without knowing anything about its capabilities as used for fighting.

The controls are more or less of the usual type. There is a longitudinal rocking shaft, mounted rather higher above the floor boards than is generally the case. The control lever is forked around this shaft, and is free to oscillate forward and backward for operating the elevator. A short length of cable passes from the lower end of the "joystick" to a point on the floor boards. This limits the extent to which the lower end of the lever can move back, and has the effect of preventing, when on the ground, the elevators from touching and getting damaged. In connection with the lateral controls, the wing flaps are fitted with cranks resting in slots in the planes, and there is a somewhat unusual arrangement whereby the *positive* cable is taken to the front arm of the crank, so that it is the return cable which pulls the wing flap down. The reason for this may be found in the warped wing flap, which may conceivably have its outer tip tilted upwards to such an extent that the effect of moving the flaps is to put a force acting downward on the flap moved upwards before the flap on the opposite side, which has, of course, been moved down simultaneously, receives an upward force. To bring this peculiar action about the crank on the rocking shaft points downwards instead of, as is more usually the case, pointing upwards.

The foot bar operating the rudder is of the T type.



The Austrian-Berg single-seater fighter.

That is to say, the rudder control cables are attached to a crank arm projecting forward at right angles to the foot bar. The cables are then taken around pulleys near the side of the body, and hence to the rudder cranks. The guards on the rudder bar, which prevent the accidental slipping off of the pilot's feet, are in the form of spiral springs, each composed of two layers, an inner spiral of fairly thin wire, and an outer spiral of heavier wire.

The engine, which, we are informed, was a 200 h.p. Austro-Daimler, is not shown in place on the machine, but it would appear to have been totally covered in by a deep engine housing. It is mounted on two spruce bearers, each made up of three laminations, mounted on four transverse partitions. These are made up of a spruce centre with facings of three-ply. The armament appears to have been made up of two machine guns, one on each side of the engine, and fitted with the usual interrupter gear.

The wings, which are both of equal span, present nothing out of the ordinary as regards their construction, except that some of the fittings for the internal wire bracing and compression tubes are

exceptionally neat in conception and well carried out. Aerodynamically, however, the wings present an interesting feature. The upper surface of the wing section has a most decided return sweep, beginning behind the rear spar and being of such a magnitude as to present a considerable area of concave surface.

The undercarriage of the Berg is not in place on the machine as exhibited, but from fragments it is judged to have been of the Vee type, and in the accompanying illustration we have endeavoured to reconstruct it approximately as various considerations indicate that it must have been.

The tail planes are built of steel tubing throughout, and the fixed tail plane is chiefly remarkable on account of the fact that, although it is built up of single steel tubes, the section is made cambered by bending the single tubes forming the ribs. Both upper and lower surfaces, therefore, have the same camber. The incidence of the tail plane is adjustable, but not during flight.

Later, as opportunity occurs, we hope to be able to publish some illustrations of the more important constructional details of the Austrian Berg fighter.

IN THE HANDS OF THE ENEMY.

THE following is an official list, published in Germany, of British machines which the Germans claim fell into their hands during the month of February, 1918:—

10 Sopwiths, single-seaters.

No. 6430, Lieut. Winter, dead.
No. 533, Lieut. Ball, prisoner.
Clerget engine, B.R., 375, Lieut. Price, dead.
Clerget motor, occupants' names could not be ascertained, dead.

Motor, W. H. Allen, Sons and Co., No. 35770, occupant dead, name unknown.

No. 5329, Lieut. Davis.
Clerget engine, No. 20561, 2nd Lieut. Caar, prisoner.
No. 8231, Capt. Ross, dead.

In the case of two Sopwith single-seaters, the numbers of machines and names of occupants could not be ascertained.

9 Sopwith Camels, single-seaters.

No. 6706, Lieut. Alderson, wounded.
No. 5417, Lieut. Gerald, prisoner.
No. 2499, Lieut. Keown, prisoner.
No. 9171, occupant wounded, name unknown.
No. 5552, Lieut. Couston, prisoner.
No. 5336, Lieut. Wade, dead.
No. 7317, Lieut. Bandell, prisoner.
Motor, W. H. Allen, No. 35954, Lieut. Kent, dead.
No. unknown, Lieut. Day, dead.

6 S.E. 5, single-seaters.

No. 8273, Major Powell, wounded.
No. 8231, Lieut. Ross, dead.
No. 5325, Lieut. Craicq, dead.
No. 4860, Lieut. Kent, dead.
No. unknown, Lieut. Martin, dead.

In the case of one S.E. 5, the number of the machine and the name of the occupant could not be ascertained.

5 De H. 4s.

Single-seaters.

Rolls-Royce engine, No. 685, Lieut. Pohlmann, dead.

Two-seaters.

No. 7873, Lieut. Green, Lieut. Martin, prisoners.
No. 768, Lieut. Cudmore, Sergt. Bain, prisoners.
No. 7697, Lieut. Shaw, Lieut. Ackers, prisoners.

In the case of one De H. 4 the number of the machine and the names of the occupants could not be ascertained. Occupants dead.

4 R.E. 8's.

Single-seaters.

No. 4423, Lieut. Gilbert, wounded.
No. unknown, Lieut. Money, dead.

Two-seaters.

No. 4455, Lieut. Macdonald, wounded; name of other occupant unknown.

No. 2293, Lieut. March, wounded; Lieut. Denipster, dead.

2 F.E., two-seaters.

No. 439, Lieut. Swart, Lieut. Clark, unwounded.
No. unknown, Lieut. Jakson, Lieut. Cuyat, unwounded.

2 B.F. two-seaters.

No. 7468, occupants prisoners; names unknown.
Rolls-Royce engine, No. 337, Capt. Sidley, Lieut. Crawford, prisoners.

1 A.W., two-seater.

No. of machine and names of occupants unknown, occupants dead.

1 Spad, single-seater.

No. 6732, Lieut. Doyle, wounded.

R.F.C. HOSPITAL FUND.

FURTHER subscriptions for this fund, in spite of our having closed the lists, have come in. There are two more items to add, viz., £5 5s. from Mr. Frederick R. Simms, of Simms' Motor Units, Ltd., and another £5 5s. subscribed by the members of the Sergeants' Mess, Aeroplane Repair Section No. 1(S) A.R.D., Farnborough, received per their President, 2nd Lieut. G. H. Blake, R.A.F.

Holland Feels the Bump.

It is recorded by the Dutch Meteorological Institute that there were two ground disturbances on the night of May 14th—at 9.46 and 9.50 (Greenwich time)—which, it is supposed, were caused by Allied airmen blowing up German magazines.

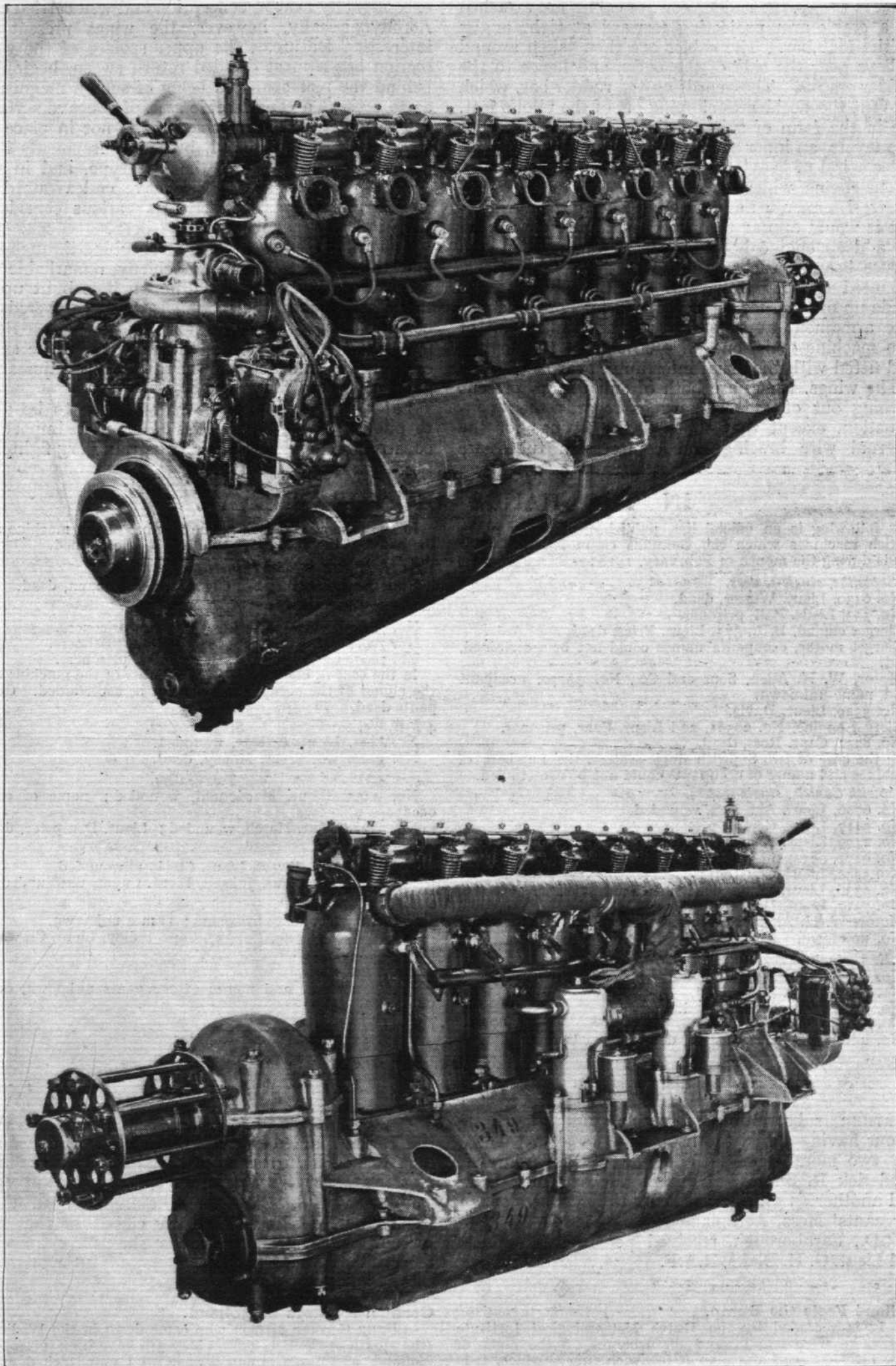
We did not like to refuse these, and therefore, with the amount added by Sir Charles Wakefield, we are able to add a further substantial selection of "His Master's Voice" records, which the hospital staff were specially desirous of obtaining. With these items, the Fund is now finally closed, so that any further sums which reach us we shall have, however regretfully, to return.

THE EDITOR.

German Aviators in Holland.

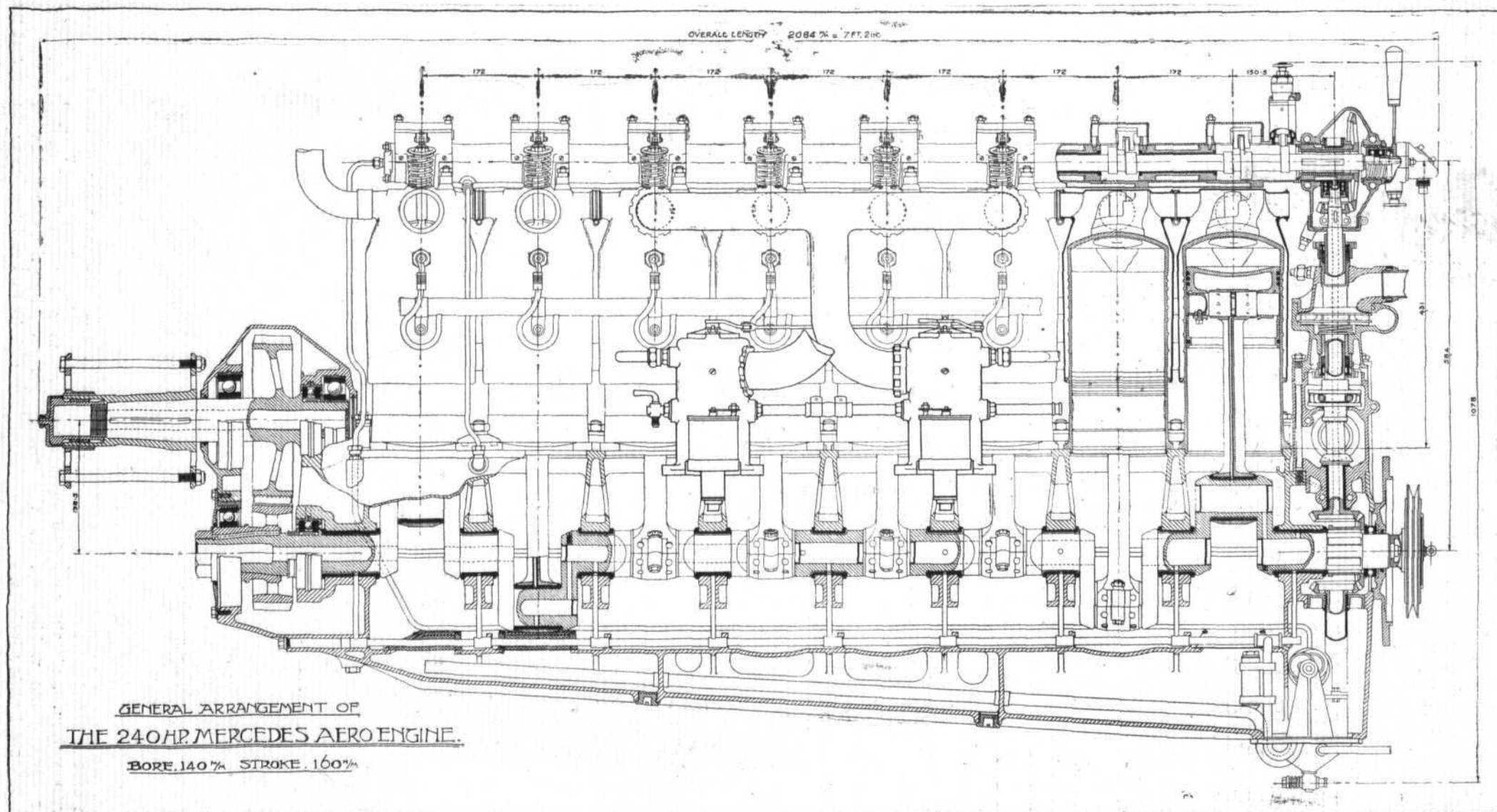
FOUR German airmen who came down in the Wielingen (the mouth of the Scheldt) on May 3rd have been interned in Holland, and two German airmen who were picked up 15 miles west of Texel and landed at Ymuiden on May 10th have been released.

THE 240 H.P. (8-CYLINDER) MERCEDES.



THE 8-CYLINDER 240 H.P. MERCEDES AERO ENGINE.—Three-quarter side views from both sides.
(See following pages.)

THE 240 H.P. (8-CYLINDER) MERCEDES.



THE 8-CYLINDER 240 H.P. MERCEDES AERO ENGINE.—Drawing showing the general arrangement and cross section through cylinders, &c.
(See following pages.)

THE 240 H.P. (8-CYLINDER) MERCEDES.

(BORE 140 MM. STROKE 160 MM.)

The following detailed report on the design of the 8-cylinder Mercedes engine is based on an investigation of the engine (No. 23,003) taken from the German two-seater Albatross Biplane (G.37) which was brought down by anti-aircraft guns near Armentières on May 12th, 1917. This engine has been tested at the Royal Aircraft Factory and results of B.H.P. developed, petrol and oil consumption, &c., during tests are given herewith, together with details of the engine design and the leading particulars of the engine. Although this engine, according to reports, is now obsolete, the design having been abandoned in favour of the German standard six-cylinder vertical type, details and illustrations of the engine will no doubt prove of considerable interest, more particularly to those interested in the design of the special engines used for airship work.

In its general details this engine follows closely the design of the 160 H.P. Mercedes engines as regards the construction of the cylinders, pistons, valve gear, &c., and also in the lubrication system. It is

therefore very similar to the 160 h.p. engine, with an extra pair of standard cylinders and a massive propeller shaft reduction gear, and the necessary alterations to the design of the crankshaft and the induction system, and in consequence of this similarity in detail to the 160 h.p. Mercedes, it will be unnecessary to deal at any length in this report with the design of those parts of the engine which are identical, a report on the former having already been issued, and the design being now well known in this country.

Engine Data.

Number and arrangement of cylinders, eight, vertical separate; bore, 5.51 ins. = 140 mms.; stroke 6.30 ins. = 160 mms.; stroke/bore ratio, 1.142 : 1; area of one piston 23.84 sq. ins. = 153.9 sq. cms.; total piston area of engine, 190.83 sq. ins. = 1231 sq. cms.; stroke volume of one cylinder, 150.28 cu. ins. = 2463 cu. cms.; Total stroke volume of engine, 1202.24 cu. ins. = 19704 cu. cms.; volume of clearance space, 40.30 cu. ins. = 660 cu. cms.; compression ratio. Total volume/Clearance volume, 4.73 : 1.

Max. B.H.P. and speed, 287 B.H.P. at 1750 r.p.m.; Normal B.H.P. and speed, 242 B.H.P. at 1350 r.p.m.; Piston speed

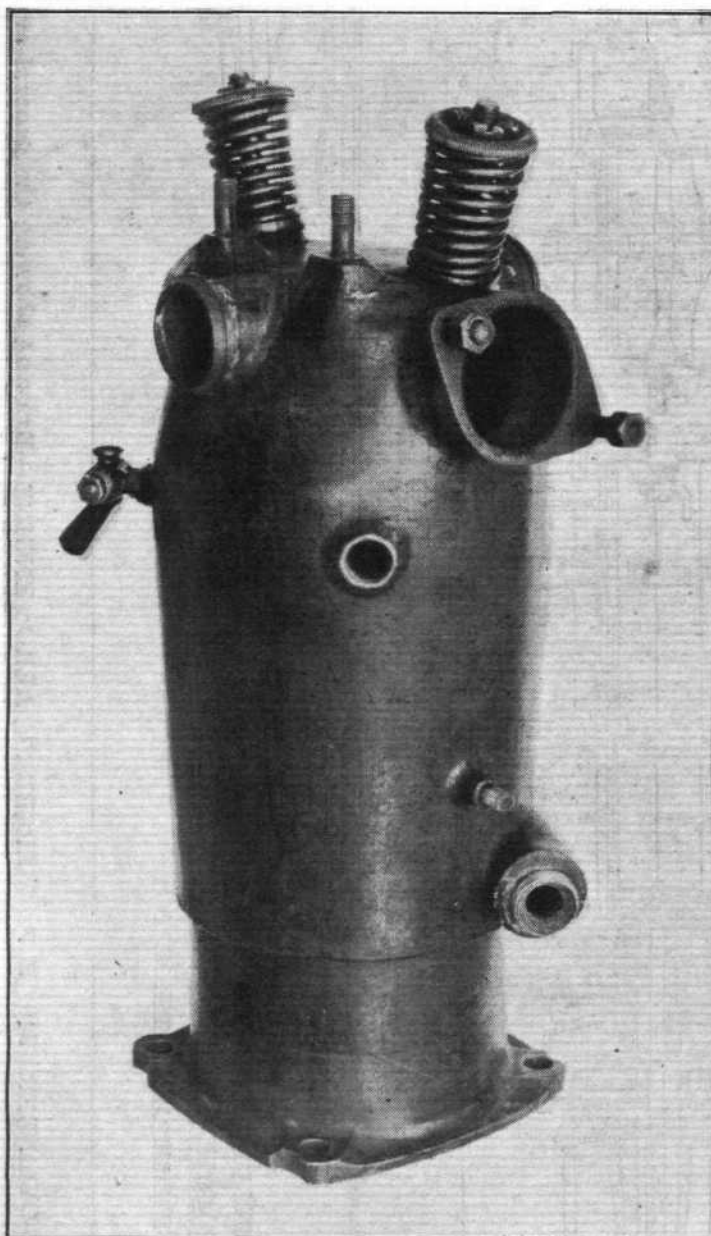


Fig. 4.—One of the standard type 160 h.p. cylinders, complete with valves, and showing the inlet and outlet water connections welded on to the sheet steel water jackets.

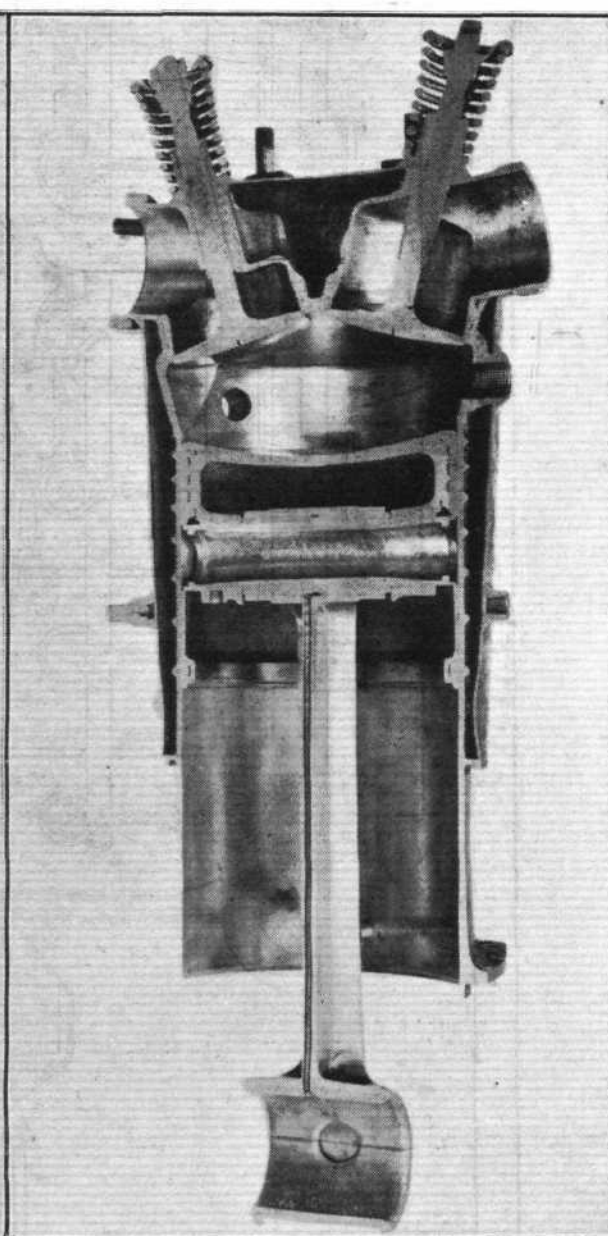


Fig. 5.—Sectional view of cylinder, piston, gudgeon pin, connecting rod and valves, showing water jacket spaces and method of cooling the exhaust valve stems. Note the sectional view of the connecting rod is shown at right angles to its correct position in the cylinder.

at normal speed, 1418 ft. per min.; brake mean pressure at normal speed, 118 lbs. sq. in.; cu. ins. of stroke volume per B.H.P., 4.97 cu. ins.; Sq. ins. of piston area per B.H.P., 0.788 sq. in.; B.H.P. per cu. ft. of stroke volume, 348.0; B.H.P. per sq. ft. of piston area, 182.7.

Direction of rotation of crank, anti-clockwise, facing propeller; direction of rotation of propeller, left hand tractor; normal speed of propeller, 977 r.p.m.; ratio of crankshaft speed to propeller speed, 1.382:1; type of gear reduction to propeller, Spur gear.

Lubrication system, forced, multiple plunger pumps; oil temperature, 37.5° C. (test figures); oil consumption

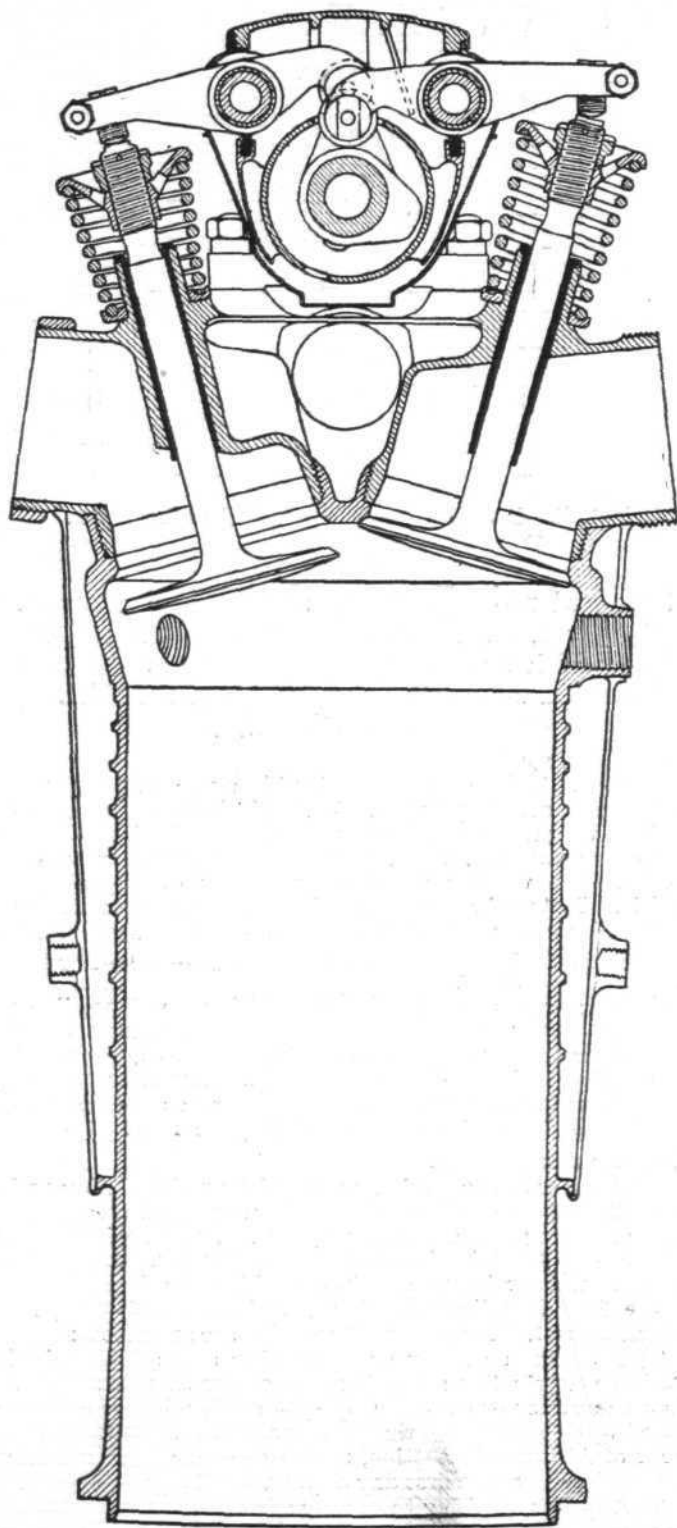


Fig. 6.—Section of cylinder, and arrangement of overhead valve gear and camshaft casing.

per hour, 10.16 pints = 11.43 lbs.; oil consumption per B.H.P. hour, 0.042 pint = 0.047 lb.; specific gravity of oil, 0.900.

Type of carburettors, Two, Mercedes, twin-jet; diameter of chokes, 0.945 in. = 24 mms.; bore of main jets, 0.078 in. = 2 mms.; bore of pilot jets 0.0197 in. = 0.5 mms.; Fuel consumption per hour, 141.3 pints = 127.1 lbs.; Fuel con-

sumption per B.H.P. hour, 0.582 pint = 0.524 lb.; specific gravity of fuel, 0.720; inside diameter of induction pipes, 2.125 ins. = 54 mms.

Type of magnetos, two Bosch, H.L.8.; Firing sequence of engine, propeller. 1-3-2-4-8-6-7-5. speed of magnetos, engine speed; magneto timing. (Degrees early full advance), 30° early.

Inlet valve opens. Degrees on crank, 2° late; Inlet valve closes. Degrees on crank, 51° late; Diameter of inlet valve (smallest diam.) = d , 2.677 ins. = 68 mms.; Lift of inlet valve = h , 0.450 in. = 11.4 mms.; Area of inlet valve opening ($\pi d h$), 3.780 sq. ins. = 24.40 sq. cms.; Mean gas velocity through inlet valve at normal speed, 149.5 ft. per sec.; clearance of inlet tappet, 0.012 in. = 0.305 mm.

Exhaust valve opens. Degrees on crank, 52° early; Exhaust valve closes. Degrees on crank, 16.5° late; diameter of exhaust valve (smallest diam.) = d , 2.677 ins. = 68 mms.; lift of exhaust valve = h 0.412 in. = 10.48 mms.; area of exhaust valve opening ($\pi d h$), 3.460 sq. ins. = 22.4 sq. cms.; clearance of exhaust tappet, 0.018 in. = 0.457 mm.

Weight of engine complete, without water, fuel or oil, 900 lbs. (including exh. manifold and propeller hub); weight per B.H.P., 900/242. 3.72 lbs. per B.H.P.; weight of exhaust manifold, 19.5 lbs.; weight of oil carried in engine, 17 pints = 19.13 lbs.; weight of fuel per hour, 127.1 lbs.; weight of oil per hour, 11.44 lbs.; total weight of fuel and oil per hour, 138.5 lbs.; gross weight of engine in running order, less fuel and oil, 1057 lbs. (including cooling system, 242 x 0.65 lbs.); weight per B.H.P., 1057/242. 4.37 lbs. per B.H.P.; gross weight of engine in running order with fuel and oil for six hours, 1971 lbs. (tanks at 10 per cent. of weight of fuel and oil); weight per B.H.P., 1971/242, 8.15 lbs. per B.H.P.

Delivery of water pump at 1350 r.p.m. of engine, 91 galls. per min.; water jacket capacity of one cylinder, 1280 cu. cms.; ratio of water pump speed to crankshaft speed, 1.5:1; water temperature. Inlet, 65° C.; Water temperature, Outlet, 78° C.; diameter of water pump inlet and outlet, 1.37 ins. = 35 mms.

General Analysis of Weights.

Description of Part.	No. per set	Average unit weight in lbs.	Weight of complete set in lbs.	Percentage of total weight.
Cylinders (bare)	8	19.25	154.00	17.111
Pistons complete with rings and gudgeon pins ..	8	6.85	54.80	6.088
Connecting rods complete with floating bushes ..	8	5.00	40.00	4.444
Valves, inlet and exhaust complete	16	1.312	20.992	2.332
Crankshaft, with floating bevel gear	1	94.50	94.50	10.500
Camshaft and case with half comprn. gear	1	60.00	60.00	6.666
Reduction gear (large) with propeller shaft and bearings complete ..	1	45.00	45.00	5.000
Reduction driving gear on camshaft, complete with bearings and thrust race	1	23.25	23.25	2.583
Base chamber (top half) ..	1	103.75	103.75	11.527
Base chamber (bottom half)	1	113.00	113.00	12.555
Carburettors, complete ..	2	8.00	16.00	1.777
Induction pipes, complete ..	2	7.25	14.50	1.611
Oil pump, complete	1	12.50	12.50	1.388
Water pump, complete ..	1	9.00	9.00	1.000
Vertical driving shaft, including magneto driving bevels and couplings, &c.	1	12.50	12.875	1.430
Propeller Hub complete ..	1	17.875	17.875	1.986
Magnetos	2	17.25	34.50	3.822
Ignition wiring complete ..	2	2.50	5.00	.555
Exhaust manifold	1	19.5	19.5	2.166
Miscellaneous parts			48.958	5.439
Total weight of complete engine			900.00	100

During calibration tests at the Royal Aircraft Factory, the engine showed a very good general performance, developing a maximum of 286 B.H.P. at 1,750 r.p.m., and an average of 242 B.H.P. at a normal crankshaft speed of 1,350 r.p.m.

Summary of Test.

Average petrol consumption per hour..	141.3 pints.
Average petrol consumption per B.H.P. hour .. .. .	.582 pints.
Average oil consumption .. .. .	.042 pints/B.H.P. hour.
Oil temperature	37½° C.
Max. B.M.E.P. at 1,100 r.p.m. ..	120 lbs./sq. in.
Average B.M.E.P. at 1,350 r.p.m. ..	118 lbs./sq. in.
Compression ratio	4.73:1.

Water pump delivery at normal engine revs. against a pressure of 2 lbs. per sq. in. = 91 galls./min.

The total weight of complete engine, dry including propeller hub and exhaust manifold = 900 lbs., equivalent to 3.72 lbs. per B.H.P.

An attempt was made to throttle the engine below 900 r.p.m., but the running was irregular.

During a power and consumption run of 1 hour's duration an average of 267 B.H.P. was developed, at an average speed of 1,550 r.p.m., and at an average petrol consumption of 155 pints per hour = .582 pints per B.H.P. hour.

Oil consumption = 10.10 pints per hour = .042 pints per B.H.P. hour.

Water temperature, inlet = 65° C.; outlet = 78° C.

This test should not, however, be taken as representing the normal performance of the engine, as the average speed at which it was run, namely 1,550 r.p.m., is higher than that which would be obtained for any length of time in the air.

Details of Construction.

Cylinders.—These, as already stated, are of the standard 160 h.p. type, and are made entirely of steel, being built up of machined steel forgings with the valve pockets screwed and welded into the cylinder-head. The water jackets are of sheet steel, 1.5 mm. gauge, all joints being acetylene-welded in position. The single inlet and exhaust valves are operated by the usual Mercedes type overhead camshaft and valve gear, which is fitted with the well-known half compression gear at the rear end of the

From Germany to Holland.

THE following officers, who were prisoners of war in Germany, have arrived in Holland for internment:—

Lt. H. L. C. Aked, W. Yorks. R. and R.F.C.
 Lt. J. M. Atkinson, A.S.C., attd. R.F.C.
 2nd Lt. C. Brown, R.F.C.
 Lt. W. A. S. Brown, Arg. and Suth'd Highrs. and R.F.C.
 Lt. A. Cairnduff, R. Muns. Fus., attd. R.F.C.
 Lt. J. S. Castle, R.F.C.
 Lieut. W. F. L. Castle, R.A.F.
 Capt. Hon. T. W. P. L. Chaloner, Yorks R. and R.A.F.
 Lieut. W. B. Ellis, A.S.C., attd. R.A.F.
 2nd Lt. K. L. Golding, R.F.C.
 2nd Lt. A. R. L. Goodson, Lond. R. and R.F.C.
 Capt. D. Grinnell-Milne, R.F.C.
 Lieut. E. B. Harvey, Lond. R., attd. R.A.F.
 Capt. C. E. H. James, Welsh R., attd. R.F.C.
 Lt. W. Joyce, Bedf. R., attd. R.F.C.
 Lieut. C. Kerr, R.A.F.
 Lieut. D. H. MacIntyre, A. and S. H., attd. R.A.F.
 Lt. O. Lerwill, R.F.C.
 Lt. S. C. T. Littlewood, L.N. Lan. R., attd. R.F.C.
 Lt. G. E. Maxwell, R.F.C.
 Lt. W. C. Mortimer-Phelan, R.F.C.
 Lt. L. A. Newbold, Essex R., attd. R.F.C.
 Lieut. C. I. Van Nostrand, R.A.F.
 Capt. D. W. Owen, Man. (Can.) R., attd. R.F.C.
 Lieut. J. W. Toone, R. Ir. Regt., and R.A.F.

The following soldiers, who were prisoners of war in Germany, have arrived in Holland for internment:—

3022 T. H. Donald, R.F.C.
 2104 E. Jones, R.F.C.
 494 V. Judge, R.F.C.
 470 N. V. Piper, R.F.C.

Post-War Models.

THE Ministry of Reconstruction has under consideration the possibility of granting assistance to manufacturers in the Motor and Allied Industries in the matter of the construction of experimental post-war models of their products.

All such manufacturers are invited to forward to the Secretary of the Motor Industry Branch Committee of the Engineering Trades (New Industries) Committee, 39, St. James's Street, S.W. 1, a statement of their requirements in this

camshaft casing. This design of half compression gear is used on all types of Mercedes engines, including the 260 h.p., and the latest 180 h.p. Mercedes engines (a report on which is in preparation, and will be issued shortly).

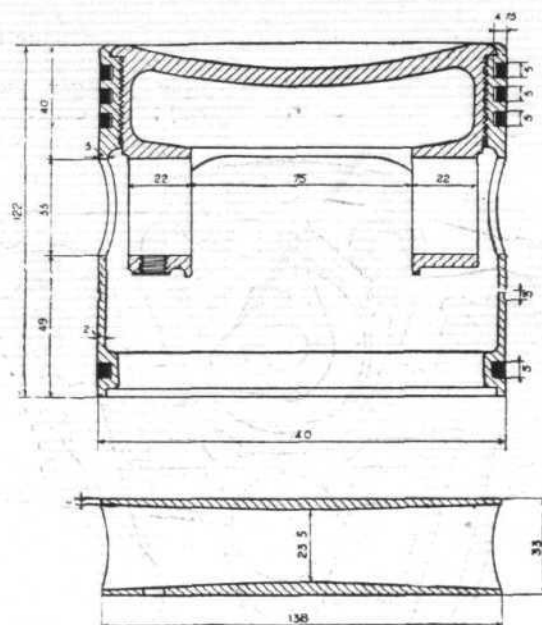


Fig. 7.—Details of piston and gudgeon pin.

Pistons.

Standard 160 h.p. pistons are used with concave steel crowns, screwed and welded into the cast iron skirts, which are fitted with three rings above the gudgeon pin and one at the bottom of the skirt.

(To be continued.)

connection. This statement should represent the most moderate demands possible. It should include estimates of the bulk weight of the different materials required, and should also cover patterns, tools, and other requirements in connection with the manufacture or testing of experimental models. It should also state requirements in respect of labour needed for the production of such experimental models, with a view to possible arrangements to permit employment of labour in this way.

Manufacturers are reminded that if it proves possible to complete arrangements in their interests it remains certain that the facilities which it will be possible to grant will be very limited and that demands should be framed accordingly.

All statements of requirements must reach the offices of the Branch Committee not later than June 10th.

Flax for Aeroplanes.

AN Order of the Ministry of Munitions, dated May 17th, prohibits persons owning or controlling scutch mills in Ireland from scutching flax straw after July 1st, 1918, without the licence of the Director-General of Aircraft Production. Licences will be issued on his behalf by the Administrator of the Flax Supplies Committee, Whitehall Buildings, Ann Street, Belfast. The terms of the Order are as follows:—

(1) No person owning or controlling any scutch mill in Ireland wherein flax straw is scutching for any person other than the owner or controller thereof shall, without a licence issued by or on behalf of the Controller of the Supplies Department of Aircraft Production, scutch or cause to be scutching at any time after the first day of July, 1918, any flax straw.

(2) Any person failing to comply with any provision hereof, or with any condition of any licence issued hereunder, shall be guilty of an offence against the Defence of the Realm Regulations.

Lubricating Oil Supplies.

THE Ministry of Munitions has called a general meeting of the representatives of the lubricating oil trade to be held in London on Thursday, May 30th, to discuss the position of supplies of lubricating oils, and to consider any suggestions which may be put forward on behalf of the trade. Those who desire to attend, but have not received a letter from the Ministry on the subject, should apply to the Controller, Mineral Oil Production Department, Ministry of Munitions, 8, Northumberland Avenue, W.C. 2.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

SPECIAL COMMITTEE MEETING.

A SPECIAL MEETING of The Committee was held on the 16th inst., when there were present :—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair; Mr. Ernest C. Bucknall, Lieut.-Col. John D. Dunville, R.A.F., Col. F. Lindsay Lloyd, C.M.G., Mr. J. H. Nicholson, Mr. T. O. M. Sopwith and Lieut.-Com. H. E. Perrin, R.N.V.R., in attendance.

Election of Members.—The following New Members were elected :—

Capt. Edward Selwyn Moulton-Barrett, R.A.F.
Major Robert John Orton Compston, R.A.F.
Capt. Ernest John Cuckney, R.A.F.
Major Charles Leslie Hardy, R.A.F.
Capt. James Dalzeil Waddell.

THE FLYING SERVICES FUND

(Registered under the War Charities Act, 1916).

Honorary Treasurer :

The Right Hon. LORD KINNAIRD.

Committee :

Brig.-Gen. W. W. WARNER, R.A.F. (Chairman).
Mr. CHESTER FOX.
Lieut.-Col. HARCOURT G. GOLD, R.A.F.
Major T. O'B. HUBBARD, M.C., R.A.F.
Squad.-Com. C. E. MAUDE, R.N.

Secretary :

Lieut.-Com. H. E. PERRIN, R.N.V.R.

Bankers :

Messrs. BARCLAY'S BANK, LTD., 4, Pall Mall East,
London, S.W. 1.

Objects :

The Lords Commissioners of the Admiralty and the Army Council having signified their approval, THE ROYAL AERO CLUB has instituted and is administering this Fund for the benefit of Officers, Non-Commissioned Officers and Men of the Royal Air Forces who are incapacitated on active service, and for the widows and dependants of those who are killed.

Subscriptions.

	£	s.	d.
Total subscriptions received to May 7th, 1918..	12,742	12	11
Staff and Workers of Gwynnes, Ltd. (Sixty-third contribution)	9	12	9

Total, May 16th, 1918 12,752 5 8

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

THE ROLL OF HONOUR.

The following casualties are announced by the Air Ministry :—

Killed.

2nd Lieut. R. W. Ashworth, Hants. R., attd. R.A.F.
2nd Lieut. F. E. Ball, Gen. List and R.A.F.
2nd Lieut. L. K. W. Barrett, Gen. List and R.A.F.
P/F.O. C. M. Bates, R.A.F.
2nd Lieut. C. C. Betts, R.A.F.
2nd Lieut. D. C. Black, R.A.F.
2nd Lieut. W. E. H. Blythe, R.A.F.
2nd Lieut. E. J. Bradbrook, London Regt. (T.F.), attd. R.A.F.
2nd Lieut. C. A. Brown, R.A.F.
2nd Lieut. F. C. Butler, R.A.F.
2nd Lieut. J. B. Chamberlin, Gen. List and R.A.F.
2nd Lieut. J. A. Clayton, R.A.F.
Lieut. G. C. Cuthbertson, M.C., R.A.F.
2nd Lieut. A. Eddleston, R.A.F.
2nd Lieut. F. G. Edwards, R.A.F.
2nd Lieut. N. H. England, R.A.F.
2nd Lieut. A. T. Exley, North'd Fus. and R.A.F.
Capt. H. Eyden, M.C., R.G.A. and R.A.F.
Lieut. E. G. Goy, R.A.F.
2nd Lieut. C. Hackman, R.A.F.
2nd Lieut. N. C. Kearney, R.A.F.
2nd Lieut. E. W. P. Lamb, R.A.F.
Lieut. J. W. McHattie, York and Lanc. Regt. (T.F.), attd. R.A.F.
2nd Lieut. E. G. S. Mortimer, Gen. List and R.A.F.
Lieut. B. B. Palmer, R.A.F.
Lieut. H. E. Robinson, Gen. List and R.A.F.
2nd Lieut. W. J. Salmons, R.A.F.
2nd Lieut. G. M. Sturgess, Essex R. and R.A.F.
2nd Lieut. H. L. Sutton, R.A.F.
2nd Lieut. F. M. Ward, R.A.F.
2nd Lieut. P. H. Whitwell, Yorks. R., attd. R.A.F.
2nd Lieut. H. B. Winton, R.A.F.

Wounded.

2nd Lieut. N. McC. Anderson, Gen. List and R.A.F.
Lieut. W. Beart, R.F.A. (S.R.) and R.A.F.
Lieut. R. D. Best, A.S.C. (T.) and R.A.F.
Lieut. D. M. Bissett, Gord. Highrs. and R.A.F.
2nd Lieut. I. S. Black, R.A.F.
2nd Lieut. A. W. Bolitho, R.F.A. (T.F.), attd. R.A.F.
Lieut. V. Brent, Middx. R., attd. R.A.F.
Capt. P. Brewsher, R.A.F.
Capt. A. F. Brooke, Gen. List and R.A.F.
2nd Lieut. H. M. Brown, R.A.F.
Lieut. H. G. Burgess, S. Staffs. R., attd. R.A.F.

Lieut. C. Curtis, R.A.F.
2nd Lieut. J. F. Good, R.A.F.
Lieut. K. Hall, R.G.A. (T.), attd. R.A.F.
2nd Lieut. L. F. Handford, Lond. R. (T.), attd. R.A.F.
2nd Lieut. R. G. Hart, R.A.F.
2nd Lieut. J. O. Holliday, R. Muns. Fus., attd. R.A.F.
2nd Lieut. T. R. Hostetter, R.A.F.
2nd Lieut. W. L. Kingwill, Norf. R., attd. R.F.A.
2nd Lieut. W. I. E. Lane, R.A.F.
2nd Lieut. G. N. Lloyd-Rees, R.A.F.
Lieut. A. W. MacKay, R.A.F.
2nd Lieut. F. P. Magoun, Gen. List and R.A.F.
2nd Lieut. W. R. McCoo, R.A.F.
2nd Lieut. H. W. McKeague, Gen. List and R.A.F.
Lieut. D. G. J. Odium, Manch. R., attd. R.A.F.
2nd Lieut. J. B. Paisley, Gen. List and R.A.F.
Lieut. M. J. Pottie, Seaforth Highrs. (T.F.), attd. R.A.F.
Capt. E. C. Powell, R. Welsh Fus., attd. R.A.F.
Lieut. L. P. Rendell, Gen. List and R.A.F.
2nd Lieut. G. H. Rogers, R.A.F.
2nd Lieut. J. J. Scaramanga, R.A.F.
2nd Lieut. H. L. Taylor, R.A.F.
2nd Lieut. H. J. Walkerdine, M.C., R.A.F.

Missing.

Capt. J. R. Allan, R.A.F.
Lieut. A. N. Baker, R.A.F.
Lieut. B. Balfour, Lond. R. (T.F.) and R.A.F.
Lieut. S. C. H. Begbie, Surrey Regt. and R.A.F.
Lieut. R. E. Bion, Hussars (S.R.) and R.A.F.
2nd Lieut. A. S. N. Coombe, Gen. List and R.A.F.
Lieut. W. Duce, Lond. R. (T.), attd. R.A.F.
2nd Lieut. W. H. Easty, R.A.F.
Lieut. C. J. Gillan, R.A.F.
2nd Lieut. D. G. Lewis, Gen. List and R.A.F.
2nd Lieut. M. H. G. Liddell, Sco. Rif. (T.F.) and R.A.F.
Capt. G. A. Magor, R.A.F.
2nd Lieut. R. J. Marion, Gen. List and R.A.F.
2nd Lieut. C. J. Mason, Gen. List and R.A.F.
2nd Lieut. L. W. Prescott, R.A.F.
Major R. Raymond-Barker, M.C., Gen. List and R.A.F.
2nd Lieut. B. W. Robinson, R.A.F.
2nd Lieut. F. C. Stovin, R.A.F.
Lieut. E. H. N. Stroud, R.A.F.
Lieut. C. G. White, R.F.A. (T.F.), attached R.A.F.
2nd Lieut. S. S. Wright, Gen. List and R.A.F.

Prisoner of War.

2nd Lieut. W. Rudman, M.C., Wilts Regt., attd. R.A.F.

The following are reported by the War Office:—

Killed.

Lieut. C. E. L. Skedons, Cent. Ont., attd. R.A.F.

Previously Missing, now reported Killed.

2nd Lieut. J. H. Corbet, Shrop. L.I., attd. R.F.C.

2nd Lieut. W. M. Kent, R.F.C.

Capt. J. G. J. Kilkelly, R. Muns. F., attd. R.F.C.

Accidentally Killed.

2628 S. N. Marsden, Aus. F.C.

27571 G. F. J. Needham, Aus. F.C.

Died.

19826 S. Grigson, Aus. F.C.

Wounded.

951 R. M. Troy, Aus. F.C.

Previously Missing, now reported Wounded and Prisoner in German hands.

Lieut. C. M. McCann, Can. M.G.C., attd. R.A.F.

Missing.

Lieut. S. A. Hustwitt, Can. Eng., attd. R.A.F.

Lieut. A. J. Melanson, Can. For. C., attd. R.A.F.

Lieut. P. J. Stuart-Smith, Can. Cav., attd. R.A.F.

Previously Missing, now reported Prisoners in German hands.

2nd Lieut. R. H. Edelston, R.F.C.

Lieut. H. K. Love, Aus. F.C.

Lieut. F. J. Westfield, Manch., attd. R.F.C.

Previously Missing, now reported Prisoner in Turkish hands.

Capt. W. L. Haight, W. Ont., attd. R.A.F.



TRADE PARLIAMENTS AND THEIR WORK.

By ERNEST J. P. BENN, Chairman Industrial Reconstruction Council.

V.—GOVERNMENT STORES.

THE Trade Parliaments which are now being formed will find such a long programme of work to get through that it will be difficult for them at first to decide exactly where to start. They will be wise if they put near the top of their agenda the consideration of the question of the disposal of Government stores. The scandals which followed the disposal of Army property after the South African War are fresh in the minds of readers. These scandals were quite in accordance with precedent, as every war has always been succeeded by the most unbusinesslike proceedings in the matter of stores. If nothing worse than our South African experiences were possible there would, after all, be little cause to worry about the matter. The fact that a few people were ruined and a few more made fortunes by doubtful means is of trivial importance, but when the present war comes to an end a situation will arise such as has never been known. It has been said that this is a war of peoples as well as a war of armies. If one may judge from the catalogues of goods which have been bought by Government Departments in the name of the war it becomes obvious that this conflict has indeed involved the whole of our people and the whole of our property. Raw materials of every kind are to-day almost exclusively the property of the Government. Wool, leather, cotton, and all the metals hardly exist for private purposes. The markets in these goods, which were four years ago the centres of interest in their respective trades, have disappeared. Dealings as we knew them no longer take place, and the whole fabric of trading in these commodities, which has in most cases been the work of generations, has absolutely disappeared. Rightly or wrongly for the purposes of the war, the Government has put certain classes of traders completely out of business. This is most noticeable in connection with raw materials. We have been accustomed to rely upon importers, brokers, jobbers, factors, merchants, and wholesalers, and in the case of the wheat, timber, wool, and other staples most of these agencies have been dispensed with. The situation at the end of the war therefore will be that the Government will possess hundreds of millions worth of materials, and it is of vital importance that the old markets and all that they involved or some new machinery capable of performing the same functions shall be ready to deal with the Government and take over these materials for peaceful trading purposes. The space at our disposal only permits of the mentioning of this truly appalling problem in its barest outline. It is brimful of difficulties, and in its details it concerns almost every citizen. The most obvious danger may be stated very simply. The price of a given commodity may have risen to five times the pre-war figure, and traders all over the country will be holding stocks of materials or finished goods which they have acquired at current prices. If at the end of the war the Government were to let loose upon the market its holding of this commodity the whole trade

would be absolutely ruined at a stroke. Another case, equally simple, may be mentioned. The Government is the owner of probably three-quarters of all the motor vehicles in existence, and when the war is over these might be put upon the market and buyers filled up with second-hand goods. In the meantime, however, the motor trade has devoted itself to munitions and aeroplanes, has modified its machinery and increased its facilities many times, and will be absolutely dependent on the greatest possible demand for new motor vehicles. The question will have to be settled as to whether the public are entitled to buy second-hand from the Government or whether they are to be encouraged to buy new goods from the trade. Upon the settlement of a question like this depends the life of the motor trade. These are two obvious cases, but there are many hundreds of others. In fact, it would be difficult to find a trade which will not be affected to some extent by a similar situation. The Minister of Reconstruction has appointed a committee to enquire into the risks associated with falling values in connection with stocks. Rising markets are very good from the trade point of view so long as they continue to rise, but when the top of the curve is reached and the fall begins the position of traders becomes extremely serious. Our business men will have obviously to arrange to overcome any difficulties connected with such stocks as they will hold when the day of peace arrives. These difficulties will be bad enough, and they are undoubtedly entitled to ask that they shall not be accentuated by ill-timed action in connection with Government stores. This is the crux of the whole matter. The traders must state their views before the Government can know what is and what is not a wise course of action.

The circumstances in connection with each material and each class of goods will be different, and those interested in each class must get together and present their plans for dealing with the situation when it arises. It is really surprising how little attention has hitherto been given to this great problem of Government stores. We are all so occupied with the problems connected with the conduct of the war that we have not the time to think of the questions that will arise later, but the most superficial consideration of the matter will show that unless Capital and Labour join together now and produce on behalf of each trade detailed schemes for dealing with the enormous issues involved in connection with matters like these there will be very little chance of a rapid transition to a condition of industrial peace. The man in the street is inclined to think that industrial peace depends entirely upon a better understanding between employers and employed. If, however, employers and employed were bound together by bonds of eternal friendship there would be no industrial peace so long as no basis existed for any market and there were no plans for dealing with materials and products.

"Captain Ball, V.C."

THERE have been many tributes paid to the memory of Capt. Ball, V.C., and yet another is the book which has been compiled by Messrs. W. A. Briscoe and H. R. Stannard, mainly from letters written by Capt. Ball to his parents and sister. These letters reveal, as Mr. Lloyd George says in his foreword, a "fine spirit of devotion to freedom, home and country," albeit they lift the veil of the intimate family life to an extent which was hardly necessary. Of course the

letters contain many references to his flying, but it is a pity that the editors did not strive to bring out this side of Capt. Ball's career more prominently. With all its imperfections, however, there will be many who will be glad to have this further record of one who Major-General Sir Hugh Trenchard says "was quite out of the ordinary; no task was too great for him to tackle, and no little detail was too small for him to see to if it affected his work." The book, illustrated by 16 photographs, is published by Herbert Jenkins, Ltd., at 6s. net.

A NEW COMPASS DEVIATION CARD FOR AIRCRAFT.

OF the many and unfamiliar instruments to which the newly-hatched Flight Officer is introduced before becoming proficient in his profession, there is none which probably tends to puzzle him more at first than the compass when he is told that errors may exist on every point, and that corrections have to be applied before he can make good his course to steer.

These errors are due to what is known as deviation of the compass, or the effect on it of the materials of which the aircraft is built, which varies in every direction to which it is pointed, and no compass can be considered worthy of any reliance until the machine to which it is fitted has been adjusted and "swung" to ascertain the remaining deviation, and the errors on each point ascertained and noted. Errors of 40° or 50° on some points of unadjusted aircraft compasses are not uncommon; hence the absolute necessity of all compasses being properly adjusted before machines are allowed to fly.

The deviation of aircraft compasses is, as a rule, ascertained on the eight principal points only, and the errors noted on a small card fixed near the compass for reference. Fig. 1 shows such a card in general use.

For Magnetic Course,	Steer by Compass.
North 0	358.
N.E. 45°	40.
East 90°	87.
S.E. 135°	134.
South 180°	180.
S.W. 225°	232.
West 270°	273.
N.W. 315°	316.

Fig. 1.—A small card is usually employed, on which are noted the deviations on the eight principal points. This card is generally fixed near the compass.

The errors on all the intermediate degrees, or each division of 10° into which aircraft compass cards are now divided, would have to be calculated, or guessed, by a pilot whilst flying from the eight whose errors are given in order to make good any course on them he might have to steer. Even the experienced pilot has, in a modern aircraft, so much to do in the way of handling his machine and keeping an eye on the numerous "gadgets" in his cockpit, that he can only glance at his compass now and then either to see that he is going in the desired direction, or to take bearings of distant objects, as he has often to do. He is fully occupied whilst doing this without having to calculate each time what the error may be on any particular point not included in the eight which are given in the old deviation cards, and apply it to find the course he should steer by compass.

It occurred to Lieut. Sir Kenneth Mackenzie, Bart., R.N.V.R., attached to the R.N.A.S., as a Group Compass Officer, to overcome the difficulty by the simple expedient of marking a replica of the compass card with the deviations ascertained by "swinging" and calculation. The pilot would then have nothing to do but follow the markings on the card, and so avoid all chance of making any error in applying his deviation.

The idea seemed so simple that he thought it must have been done long ago, but probably discarded for some reason or the other. This evidently was not the case, for when submitted to the Admiralty Compass Observatory the device was at once adopted, and deviation cards on this principle have now been issued for general use to the Air Services.

Fig. 2 shows the new card with the same deviation errors as are given in Fig. 1, only extended throughout the whole 36 "points" instead of the eight principal ones only. In practice, such a card might be marked in colour to make it noticeable,

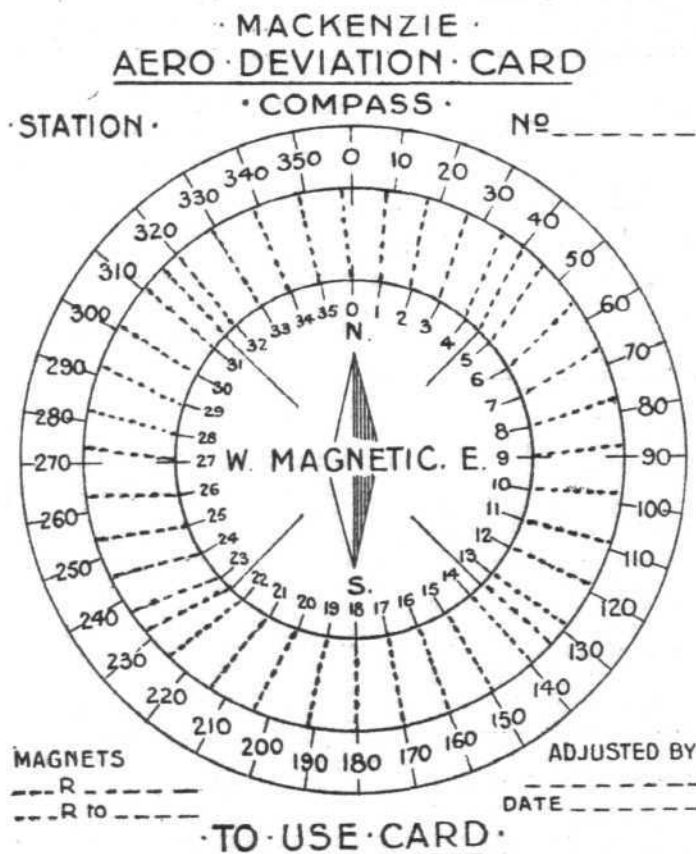


Fig. 2.—The Mackenzie compass deviation card for aircraft.

DEVIATION TABLE

SHIPS HEAD	DEVN
N.	2 E
N.E.	5 E
E.	3 E
S.E.	1 E
S.	0
SW.	7 W
W.	3 W
N.W.	1 W

Fig. 3.—The back of the Mackenzie deviation card. Here the deviations on the eight points are noted by the adjuster for reference, in case the face of the card becomes soiled.

but we have shown the markings in dotted lines for facility of printing.

Fig. 3 shows the back of the same card where the deviations on the eight points are noted by the adjuster for reference in case the face of the card becomes soiled.

These cards are being issued in two sizes; a 3-inch compass circle for small aeroplanes where there is not much room on the instrument board, and a 4-inch for larger machines and airships.

Sufficient has, we think, been said to show that the Mackenzie Aero Deviation Card should prove a boon to flying men who more and more will have to rely on their compasses as flights become longer and longer, especially when out of sight of land or anything to guide them.

We may add that a deviation card on similar lines,

but marked in the usual nautical manner, is being got ready for issue to the hardy skippers of our A.P. Service, many of whom, though wonderful

seamen, have not made a special study of the compass, and to whom "deviation" and its mysteries is frequently as "Greek."



ANSWERS TO CORRESPONDENTS

Notice to Correspondents in General.

FULL particulars regarding the conditions of service in the Royal Air Service were given in "FLIGHT" of April 11th.

Application to join as a cadet should be made in letter form, stating full personal particulars, to the R.A.F. Reception Depot which is nearest to the registered address of the applicant.

Applications for enlistment should be made personally or by letter, stating full particulars, including age and trade to the R.A.F. Reception Depot which is nearest to the registered address of the applicant.

Boys are enlisted from time to time for long service only. They should be Class A and between the ages of 15 and 17 years. Applications should be made as above.

No person is eligible for enlistment into the Royal Air Force unless he is a natural born British subject and the son of natural born British subjects.

The Royal Air Force Reception Depôts are:—

40, Upper Brook Street, Mayfair, London, W.1.

8, Tyndall's Park Road, Bristol.

12, Newport Road, Cardiff.

Carlton Chambers, Paradise Street, Birmingham.

Midland Bank Warehouse, King Street, Nottingham.

117, Mount Pleasant, Liverpool.

6, Portland Crescent, Leeds.

10, Sydenham Terrace, North Road, Newcastle-on-Tyne.

9, Somerset Place, Sauchiehall Street, Glasgow.

H. G. G. (Wantage).—The struts of the Albatros fighter are stream-line steel tubes. The "spinner" around the propeller boss serves to reduce head resistance. In the earlier machines the wings were warped by having the cables to the rear spars pass over pulleys, those of a monoplane passing over pulleys mounted on *cabanes* below and above the fuselage. These models can no longer be purchased. The three struts seen near the tip of certain aeroplanes are not all inter-plane struts. Two are plane struts, while the third connects the upper and lower *ailerons*. This machine is imaginary. Very.

T. R. K. (Builth).—Strictly speaking an aeroplane has a variety of gliding angles. In fact there is a gliding angle for every speed of which the machine is capable. There is one speed, however, for each machine, at which the gliding angle is smallest. This is the angle, usually, although somewhat vaguely, called the gliding angle. In the majority of modern machines this angle will be found to be nearer the minimum than the maximum speed, but its relative position in the scale of speeds will be found to vary with different types of machines. In other words if a curve of gliding angles is plotted against speeds, the top of the curve will always lie between the two extreme speeds of which the particular machine is capable, and usually nearer the minimum speed. Dimensions of the wing section known as Eiffel 32 were published in our issue of March 21st, 1918. A printer's error



An American Ace Killed.

THE little band of Americans who originally formed the Lafayette squadron for service with the French Army is being steadily diminished. Major Raoul Lufbery, who was one of the first twelve and who has for the past few months been attached to the U.S. Air Service, was killed on May 18th. Major Lufbery, who was credited with having brought down 18 German machines, was seen to be engaged with a German triplane, with two guns, at a height of about 5,000 ft. His machine caught fire, and when at 2,500 ft. Major Lufbery apparently jumped out, his body falling near a farmhouse.

Major Lufbery had been decorated with the Military Medal and the Legion of Honour.

crept in, the height above the chord at the leading edge being given as .10. This should be .01. The dimensions of the R.A.F. 3 are as follows:—

Distance from leading edge in terms of chord.

		0	.025	.05	.1	.2	.3
Upper	..	..	.008	.030	.044	.064	.084
Lower	..	..	.000	—	.009	.016	.024
		.4	.5	.6	.7	.8	.9
Upper	..	.085	.078	.069	.056	.041	.024
Lower	..	.032	.031	.026	.021	.014	.008

It is incorrect to say that a pusher cannot loop. As a matter of fact, we have seen Capt. Hucks loop on a single-seater pusher. It is, however, generally correct to assume that a pusher is more difficult to loop than a tractor. The reason for this is not quite clear, but the pusher type appears to have a tendency to fall out of the top of the loop sideways. This tendency is probably connected with the distribution of vertical fin area, which is somewhat different in this type. The reason for placing the gravity petrol tank some distance out on the upper wing of some machines is that by so doing the danger of the petrol running down in the body and on to the hot engine in case the tank gets punctured is reduced. The rest of your questions we are not at liberty to answer.

H. G. B. (R.N.).—In the Gallaudet pusher-fuselage seaplane the fuselage is divided into two parts by the four-bladed propeller which revolves on a fairly large diameter drum rigidly mounted to, and connecting the two parts of the fuselage. The propeller is driven by spur gearing from the motors—of which there are two. The motors are situated in the fuselage behind the cockpits and are so arranged as to be capable of driving the air screw either independently or together.

R. C. (Shrewsbury).—The objection to the Paulhan-Tatin monoplane of 1911 was, we believe, that she was tricky on the controls. Otherwise she was a most remarkable efficient machine. Possibly also the fact that she was, so to speak, several years before her time may have counted against her. Your question re internal wire bracing is not quite clear. We take it, however, that what you refer to is internal lift bracing of the wings. The objection to it is that unless the wing section is very deep, adequate strength cannot be provided, without great increase in weight.

G. E. P. (Boston).—We are not permitted to give particulars of the machines you mention.

G. B. H. B. (East Dereham).—The meaning of the following initials is, respectively: L.V.G. *Luft Verkehrs Gesellschaft*; L.F.G., *Luft Fahrzeug Gesellschaft*; L.W.F., the initials of the partners in the firm and also Laminated Wood Fuselages; D.F.W. *Deutsche Flugzeug Werke*. On the Nieuport chasers the chord of the lower plane is considerably smaller than that of the top. During the war records for speed, climb, altitude, and duration may not be published.



The End of M. Gilbert.

By the death of Eugene Gilbert, who was killed in a practice flight at Villacoublay on May 16th, France has lost another of her famous sons. It will be remembered that after bombing the Zeppelin works at Friedrichshafen on June 27th, 1915, he was forced to land in Switzerland and was interned. He succeeded in escaping two months later, but as his letter withdrawing his parole did not reach the Swiss authorities until after his escape the French Government sent him back to internment. He nearly got away in February, 1916, and was successful at the third attempt on May 24th, 1916.

The accident took place at 6 p.m.; Gilbert was trying a new machine above Chaville, when for some unexplained reason it appeared to turn over and fall to the ground.

THE FOKKER TRIPLANE.

(Continued from page 536.)

WE now come to deal with the most interesting part of the Fokker triplane, the wing structure. It has already been pointed out that the machine is of the "wireless" type, inasmuch as there are no lift wires or landing wires, the only wires employed in the wing structure being the diagonal cross bracing between the centre struts sloping upwards and outwards from the body to the top wing. Aerodynamically this is advantageous from the point of view of low resistance, but structurally it is open to criticism on the score that it is difficult to provide adequate strength in such a structure, and that the only possibility of doing so is to employ a very deep wing section which will allow of using spars of such a section and depth that its moment of inertia is large without its area being excessive. This is precisely what the designer of the Fokker triplane has done. The wing section is one of far greater depth than one is accustomed to find on a modern fast machine, and inside this deep section he has built up a composite spar of somewhat unusual construction. Hitherto the vast majority of aeroplanes of any nationality have had wing spars which were either of the I or of the box section. In the Fokker spar we have neither strictly speaking, since it is certainly not an I section and only a box spar after making certain allowances.

Briefly speaking, the principle of the Fokker triplane spar is the following: There are two spars as in the majority of other wings, but placed absurdly close together. Each spar is of the box type inasmuch as it consists of spruce flanges top and bottom, with a web of three-ply on each side. The top and bottom faces of these two spars are then united by a sheet of three-ply covering, them up so as to form in effect two boxes within a box. In this manner there is no need—or at any rate the designer appears to be of that opinion—for any internal wing bracing, this being provided by the top and bottom three-ply covering.

In Fig. 11 are shown some of the constructional details of the Fokker wings. The sketch at the top of the illustration shows the upper starboard wing in general arrangement. The construction is similar in all wings as regards fundamental principles, and only differs in minor details where this is necessitated by local requirements. The outward appearance of the wing spar is shown in the top sketch, and also the manner of attaching the ribs, which are prevented from sliding along the spar by little triangular section blocks of wood tacked to the spars. The sketch in the centre shows the construction of the spar, and one of the longitudinal partition.

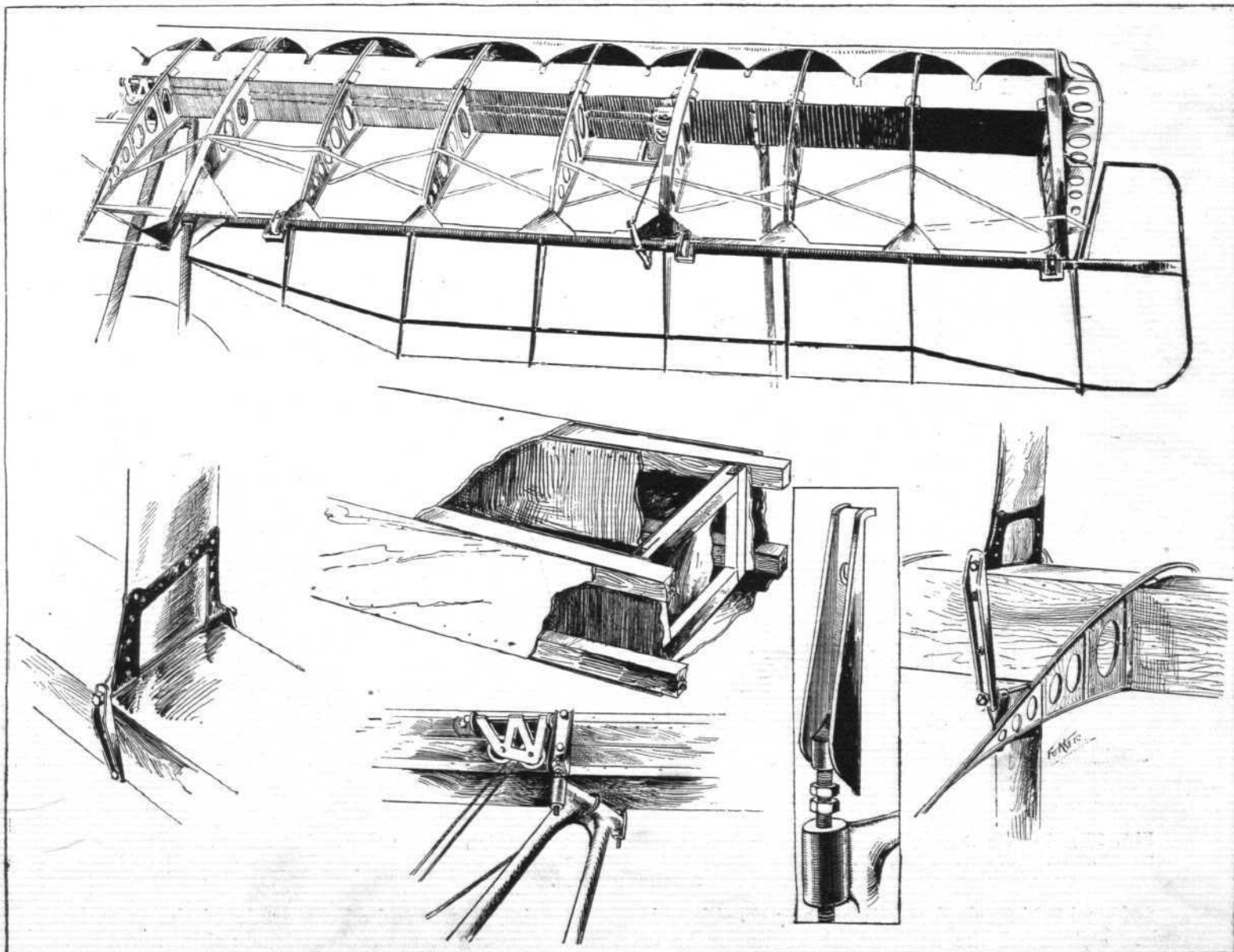


Fig. 11.—Some of the wing details of the Fokker triplane.

which occur at certain intervals along the spar. These partitions are made up of four strips of spruce, halved together and glued. The ribs have spruce flanges and very thin webs of three-ply wood, approximately 1 mm. thick.

are secured to front and rear faces respectively of the spar, by two horizontal bolts passing through the spar. To the bottom end of each plate is welded a small lug, internally threaded, into which is screwed a vertical bolt, the other end of which passes through

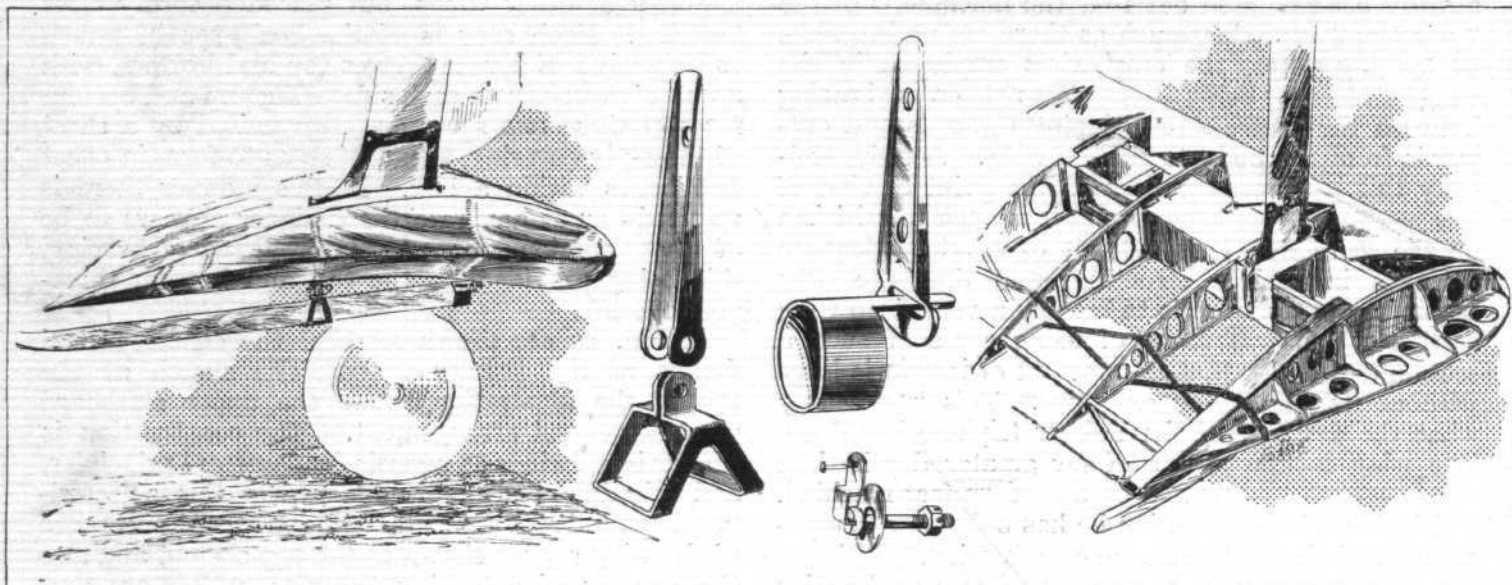


Fig. 12.—Details of the wing tip and its skid on the Fokker triplane.

The leading edge is formed by a long strip of three-ply, wrapped around the nose of the ribs, and cut out in triangular shapes, the apices of which are secured to the top of the spar.

As shown in the scale drawings of the Fokker triplane (published in our issue of May 2nd), the upper wing is supported from the body on two inverted

a lug on the strut structure and is secured in position by locknuts. It will be seen that by suitably adjusting the bolts securing the spar, the angle of incidence may be slightly varied. To the left of the strut attachment will be seen the pulleys for the wing flap cables, which run from this point to the cranks of the rocking-shaft in the body.

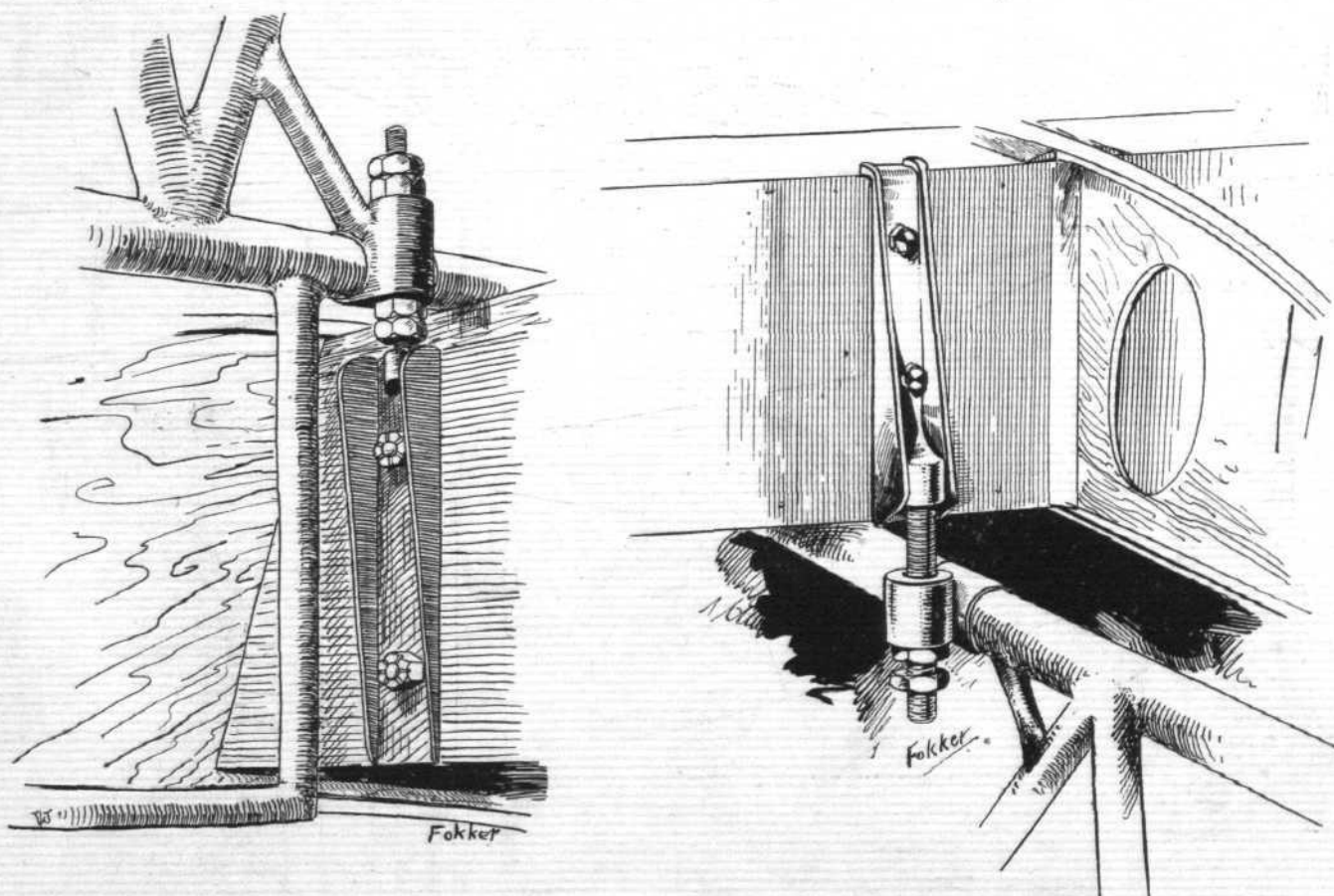
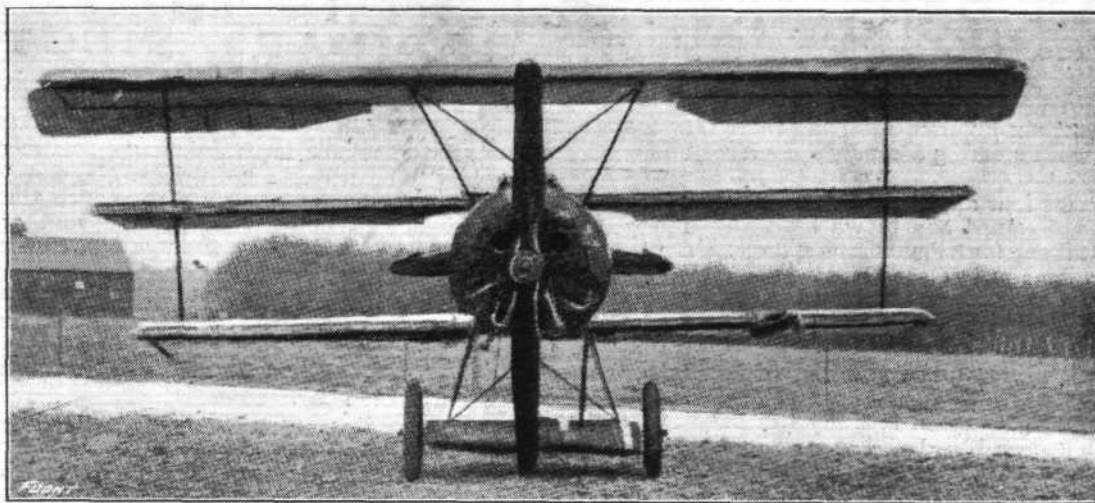


Fig. 13.—Attachments of wing spars to body on the Fokker triplane. On the left is shown the attachment of the bottom plane, while the sketch on the right shows how the middle plane is secured to the top body rails.

Veels of steel tubing, sloping outward at a considerable angle. Details of the attachment of the apex of the Vee to the top spar are shown in the two sketches at the bottom of Fig. 11. Two channel section plates

Mention has already been made of the fact that the interplane struts are extremely thin, and are in effect ties rather than struts. They are made of wood, and the attachment to the spars is shown in



Front view of the
Fokker triplane.

the remaining sketches of Fig. 11. That on the left shows the attachment to the lower spar, and the sketch on the right indicates how the same method, with slight modifications, is employed for securing the inter-plane struts to the middle spar. A shoe of thin sheet steel is wrapped around the end of the strut, and through it a long tubular bolt is passed, which also runs through the holes in the channel section plates on the sides of the spar. The principle is really the same as that for attaching the body struts to the spar. In the latter, however, the channel plate has its upper end bent over the edge of the spar, presumably to assist in relieving the bolts passing through the spar of the shearing stress.

In Fig. 12 are shown some of the details of the lower wing near the tip. On the right will be seen a sketch illustrating the peculiar construction of the extreme wing tip. This is formed by placing an ordinary rib horizontally, attaching it to the last main rib by triangular brackets of wood. The remaining sketches of Fig. 12 show the details of the wing tip skid. From the sketch on the left it will be seen that the skid is so close up against the lower surface of the wing that the machine would have to cant over at an alarming angle before the skid would come into

play, and it is difficult to see how the skid could be of any great practical use. Its attachments are shown in the detail sketches, that on the left indicating how the skid is pivoted, while that on the right shows how the free end of the skid is secured. Small bolts pass through these fittings and are locked on the inside of the spar in the manner indicated in the small sketch.

The attachment to the body of the lower and middle wing is shown in the sketches of Fig. 13. That on the left, illustrates the bottom plane attachment. It may be remembered that the main lower body rails were passed over the bottom spar, auxiliary rails being provided for maintaining the continuity of the curve underneath the spar. This is indicated in the sketch on the left. The attachment itself is exactly similar in principle to that of the top spar to the body struts. Again provision has been made for adjusting the angle of incidence. The middle spar attachment, shown on the right, is to all intents and purposes the same reversed. In this connection it should be remembered that the spars run right across from side to side in one piece. This has an important bearing on the wing spar stresses, with which we hope to deal next week.

(To be continued.)

U.S. Aerial Mails.

THE first aeroplane mail service between Washington and New York was inaugurated on May 15th. The aeroplane conveying the New York mails arrived in schedule time, nineteen letters being delivered at the White House at a quarter past three in the afternoon, having been brought from New York by an aeroplane which left there at noon. The machine from Washington was forced to descend after a short distance had been covered.

Inter-Allied Aerial Mails.

GENERAL BONGIOVANNI, the chief of the Italian Aviation Department, states that France, Britain, and Italy have come to an understanding as to aerial communication between London, Paris, Nice, Rome, and Brindisi, and that this matter is now being thought out. General Bongiovanni is confident that all difficulties will be overcome and that aerial postal communication between the Allies will be instituted.

Anglo-Dutch Aerial Post.

THE plan for an aerial post to England was discussed at the meeting of the Amsterdam Chamber of Commerce on May 15th, and the committee was instructed to impress the urgency of the matter on the authorities. One member declared that the usefulness of such a service was now fully realised. What had been done abroad, he added, proved that an aerial post was possible.

Attempted Raids on Paris.

THREE attempts to raid Paris were made on May 15th and 16th. An alarm was given towards midday in the

district north-east of Paris. An enemy aeroplane was making for the capital, but the defence batteries immediately came into action and French airmen went in pursuit of the German, who changed his direction and fled without dropping bombs. The "All clear" was sounded 45 minutes later.

The second alarm was late in the evening. On the observation posts of the fortified zone of Paris notifying that enemy aircraft were making for Paris, the alarm was sounded at 10.12 p.m. Fire was opened by the artillery posts, and the aircraft assigned to the defence of the city took to the air. No enemy machine succeeded in reaching Paris, but several bombs were dropped in a large suburb. The "All clear" signal was given at 11.55 p.m.

A fresh air raid alarm was given in Paris at 1.50 a.m. The "All clear" was given at 2.30.

It is unofficially reported that two successive attempts were made by two different groups of German aeroplanes. The first group, having dropped bombs about 19 miles south of the point at which they had crossed the lines, returned at about 11 o'clock. A second group of four aeroplanes, crossing the lines a few minutes later at almost the same point, made for the south-west, but had to return after having gone about 30 miles. They dropped a few bombs in open fields.

The following official communiqué was issued in Paris at 11.15 p.m. on May 17th:—

"Enemy aeroplanes crossed our lines and bombarded several districts at the rear of the front.

"Some of the machines proceeded in the direction of Paris. The alarm was given at 10.32, and the 'All Clear' at 11.2 p.m. Bombs were dropped at various points in the outer suburbs."

II.—BEING AN ORDINARY INCIDENT IN THE ORDINARY LIFE OF AN ORDINARY PILOT.

A LOW "STRAFE."

THE clouds were hanging about six hundred feet, and there was no wind to worry about when steering a compass course in the clouds.

I had been back from leave for four days, and in that time I had not flown at all as it had rained and blown hard all the time. The day was an ideal one for a low bombing show. My chief fear was that if, for some unforeseen circumstance, I had a forced landing, I should have to come down complete with bombs, and as I had not flown for nearly three weeks, my judgment would be rusty, a crash might ensue and up I should go again (in pieces). After lunch I felt a little braver, so that I telephoned to the sheds, ordered my machine with bombs in half an hour, and got myself into my tidiest suit. When all was ready I got on board and ran up my engine. The machine had been hardly used while I was on leave, but the Clerget gave a good eleven fifty revs., running very sweetly. On our aerodrome we had to "taxi" out along a track to get on to the only part which was good enough for taking off and landing. I punctured a tyre while taxi-ing, a frequent occurrence, which delayed me about ten minutes. I got off at last and climbed straight up through the clouds over the aerodrome. The clouds were 600 feet to 1,200 feet, and above was blue sky and bright sunshine. I steered east for about ten minutes by compass, which I calculated would bring me about two miles over into Hunland, then shut off the engine, shoved the nose down, and dived through the clouds for better or worse. The first sight I had of the ground was from six hundred feet, but I kept on down for another hundred feet, as I knew the Hun gunners would have the exact range of the clouds. I opened out the engine and circled round to try to pick up my bearings. The ground below me, and in fact all round presented a barren, wasted appearance, with absolutely no signs of life. A few scattered shell holes spotted the ground underneath me; while about half a mile to the east I saw the walls of a wrecked farm-house.

Any farm-house within about four miles of either side of the lines usually keeps stores or men inside it. At the moment I spotted the farm I heard the rat-tat-tat of a machine gun. His chances of hitting me were small, as all the time I had been looking round, the Camel was dodging about, first on one wing tip, then on the other. I flew at the farm, steering a zig-zag course all the way. I did a "split" turn over the farm, and although I could see no men actually moving about I knew it was a fortified post, because of trenches and fortifications which had a knavish look. By this time I began to feel that the sooner I was rid of my bombs the better. I flew straight across the farm-house at about five hundred feet, and pulled my bomb release four times quickly, immediately afterwards "zooming" up on a climbing turn. I heard zonc-zonc-zonc; the last bomb I did not hear. I

looked down at the farm and saw a cloud of smoke and debris, but waited no longer to see any further damage, as things would shortly be very unhealthy. I got up into the clouds, and steered south-east for about ten minutes by which time I judged I should be about eight miles over, and on the southern section of our front. I came hurtling through the clouds, straight on top of a main road with trees on either side. I was almost too far East to be troubled by hate, unless by bad luck I struck a town, and the main road presented a deserted appearance. I turned and flew north up it, at about 60 feet from the ground below the trees, as on all low shows, the lower one flies the safer.

Suddenly I met a convoy of about twenty grey lorries coming up the road towards me. Most of the lorries had open fronts with two or three men on the front seats. We came straight for each other, head to head, when, at about a hundred and twenty yards range I opened fire with both my Vickers guns. The lorries stopped all in a hurry. The driver of the front lorry fell down in his seat, while the other two men jumped down and fled for the ditch.

A few men jumped from the backs of the lorries into the road, caught sight of the aeroplane flying between the trees up and down the convoy, hesitated whether to run for it, lie down or get back from whence they came. Sensible ones lay down, pretending to be hit, foolish ones ran for the ditch, presenting a good target as they ran; while the most foolish tried to clamber up to the lorries, presenting a glorious stationary target for my two Vickers guns. Some dropped down under the lorries, others in the road, others in the ditch. They must have had casualties, but to what extent it was impossible to say as they all lay still, the shot and the survivors.

Not a man moved, not a car moved within a minute of my arrival. All the lorries were deserted and stationary in the middle of the road. As there was no further object in staying there, I flew up the road again. By bad luck, I only met a few parties of odd men walking along the road. They all performed the same antics, of rushing about, hesitating where to go, in a panic, before lying down in the ditch or road.

Both of these places must have been extraordinarily damp and cold after all the rain.

After another two miles of road, going in a north-west direction, I judged that soon I should probably be running across something unpleasant in the way of "hate," so, discretion being the better part of valour, I pulled up into the clouds, steered due west for about fifteen minutes, and then came out five miles our side of the lines in country I knew well. I "contour chased" (i.e., flew between trees) all the way home, made a dud landing, a huge tea and an enormous dinner.

H. B.

AVIATION IN PARLIAMENT.

Royal Air Force. Mechanics (Tools).

Mr. T. WILSON, in the House of Commons on May 14th, asked the Secretary to the Admiralty if he will issue an Order stating clearly the position of the mechanics in the Royal Naval Air Service who provide their own tools; whether it is proposed to purchase the tools from the men or pay for the hire of them; whether the men will have to pay for tools lost or broken; and whether the men who are still using their own tools will be paid the 3d. per day allowed as tool money?

Major Baird: An order was issued on March 14th setting out the terms on which the Service was prepared to purchase tools which were the personal property of ratings of the Royal Naval Air Service. It is not proposed to hire these tools from them. When issued to men on loan they will be replaced if broken or if unavoidably lost, but if lost by neglect a proportion of the cost will be charged against the man responsible. It should not be necessary for men to use their own tools, neither is it desired.

Royal Air Force (Medical Committee).

SIR H. GREENWOOD, on May 15th, asked the Under-Secretary of State to the Air Ministry how often the medical committee of the Air Force has met; and whether the Director-General of the Naval Medical Service and the Director-General of the Army Medical Service were present at such meetings?

The Under-Secretary of State to the Air Ministry (Major Baird): The Medical Administrative Committee of the Air Force has met on four occasions. The Director-General of the Naval Medical Service was present at three of the meetings. The Director-General of Army Medical Services was present at the first two meetings, and sent representatives to the other meetings.

Mr H. Greenwood asked whether the Air Ministry has obtained sanction from the Treasury for the salaries of three members of the Committee, in accordance with the plans laid down?

Major Baird: I presume that my hon. friend is referring to the Medical Administrative Committee, and in that case the answer is in the affirmative.

Mr. Joynson-Hicks asked the Under-Secretary of State to the Air Ministry whether the medical committee has arranged for the inspection of aerodromes; if so, how many aerodromes have been inspected; whether they themselves have made any such inspections, and generally whether, in accordance with the scheme, they have determined the requirements, administrative, professional, and scientific, for the medical service of the Air Force; and whether they are convinced that these requirements are now being properly met?

Major Baird: The Medical Administrative Committee has arranged for the inspection of aerodromes. These inspections are being carried out by eleven senior medical officers of the Navy and Army lent to the Royal Air Force. Reports have already been received from them on nearly all aerodromes at which flying takes place. All possible steps are being taken to meet the requirements for the medical service of the Air Force.

Mr. Joynson-Hicks: Is the Army Council satisfied with the existing condition of the medical service of the Air Force?

Major Baird: Every possible help is being received in this matter, and we are making very great progress.

Rewards to Inventors.

MR. G. TERRELL asked the Under-Secretary of State to the Air Ministry whether, in view of the precedent that the Government have now offered a substantial monetary reward for inventions regarding oil fuel, he can see his way to recommend that suitable rewards be offered to inventors who can devise methods of locating enemy aeroplanes at night?

Major Baird: The secrecy involved in such an enquiry precludes any open competition of this nature, but the existing system of rewards can be applied in the case of any successful invention of this kind forwarded through the Air Inventions Committee, 2, Clement's Inn.

French Parliamentary Aviation.

M. PAINLEVÉ has been appointed President of the French Parliamentary Aviation Group, in succession to the late M. Millevoye.

Italian Pilot Killed in U.S.A.

THE well-known Italian pilot, Resnati, has been killed in an aeroplane accident in the States where he has been demonstrating Italian machines.

"X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of places visited by enemy aircraft to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

"X 96" Raid (May 19th-20th).

The following *communiqués* were issued from General Headquarters, Home Forces:—

"May 20th, 12.30 a.m.

"Hostile aircraft crossed the coasts of Kent and Essex shortly after 11 p.m. to-night (May 19th) and proceeded towards London. The raid is still in progress."

"May 20th, 2.15 a.m.

"Reports show that four of the enemy aeroplanes which raided London and the south-east last night have been brought down.

"The raid appears to have been on a large scale, and a considerable number of bombs were dropped, but no details of casualties or damage are yet available."

"May 20th.

"The following are the casualties so far reported in last night's air raid:—

London, Metropolitan Police District and City.

Killed.—Men, 17; women, 14; children, 6; total, 37.

Injured.—Men, 83; women, 49; children, 23; total, 155.

Provinces.

Killed.—Nil. Injured.—Men, 2; women, 3; child, 1; total, 6. Considerable damage to house property is reported.

Later.

"A considerable number of Gotha aeroplanes appear to have taken part in last night's raid. It is not possible to give an exact figure, but probably between 20 and 30 machines participated. A group of machines came in up the Thames Estuary about 11 p.m., and skirted the North Kent Coast on their way to London, being heavily engaged by the A.A. Defences on their way inwards. One of these machines was engaged at about 11.30 by a British airman, who fired

at the raiders at close range until the machine disappeared from view in the clouds. Shortly afterwards she burst into flames at a height of about 7,000 feet, and fell a blazing wreck to earth. The remaining other machines passed inland over Kent, dropping bombs at various places without doing material damage.

"Another group of raiders crossed the Essex Coast and made its way towards London, where one machine was brought down by gunfire. A few dozen bombs were dropped promiscuously in certain parts of the London district, doing, in a few cases only, no inconsiderable damage to small dwelling-house property. The casualties were, however, by no means heavy or proportionate to the material damage. All the raiders were hotly engaged by the A.A. defences. Some of the enemy machines attempted to make their way down the Thames Estuary, others proceeded eastwards overland; some may have been severely damaged during their attempt to penetrate the London defences. At least three more of them failed to effect their escape. Two were brought down before they had crossed the coast, one of these being destroyed by a British airman. A fifth machine came down in flames into the sea, and a sixth is also reported to have been observed falling into the sea, though this report is not yet definitely confirmed.

"Further reports make it appear that yet a seventh raider failed to reach home, but fell burning into the sea. This statement is not yet corroborated by any more material evidence. There is no further material change to record in the casualty list as given this afternoon; it now stands at 37 killed and 161 injured. Except for two outbreaks of fire occasioned in larger premises, which were soon got under control, the damage was confined to the wrecking of some small dwelling-houses by force of explosion as well as to the breakage of much glass."

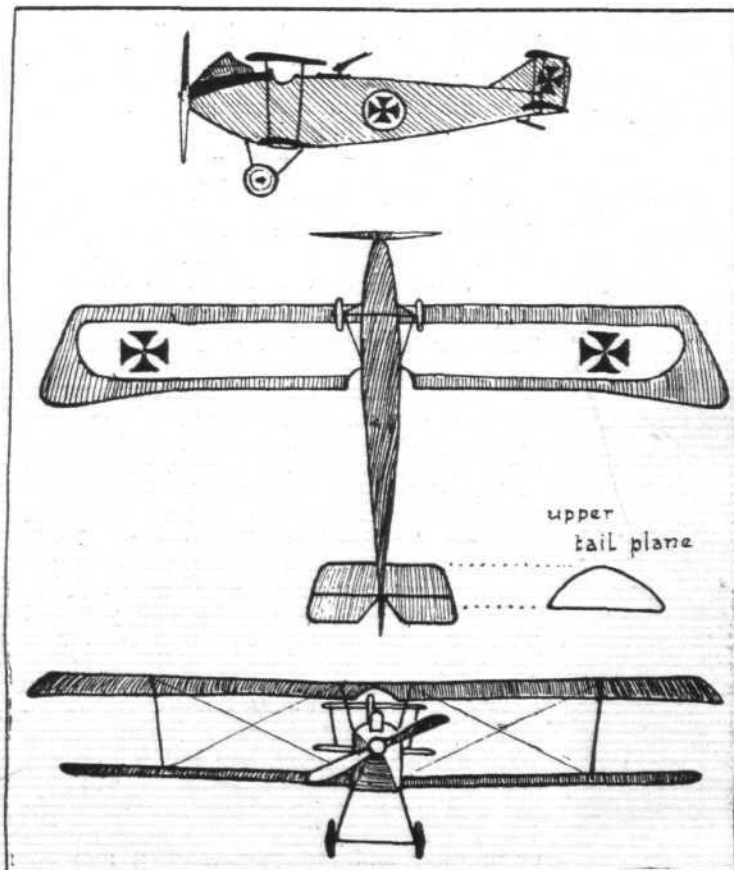
German Version.

"Berlin, May 20th, 9.15 p.m.

"Last night London, and also Dover and other places on the English coast, were successfully attacked with bombs."

THE "GERMAN" MYSTERY BIPLANE.

IN our issue of April 25th, we published sketches of a German biplane, the identity of which was some-



what in doubt. We also requested readers who might have had an opportunity of seeing this machine to

send us any information concerning it for the benefit of others. In response to this request we have now received the accompanying set of sketches and descriptive matter. Our correspondent is good enough to say "that 'FLIGHT' always gives us such useful information about German planes that it is only fair to pass on what we know."

"The machine," our correspondent says, "is believed to be an H.W.F. (Hannoversche Waggon Fabrik). The fuselage is deep in side view. The struts slightly converge on lower wing. When seen overhead both leading and trailing edges of top wing are clear beyond respective edges of lower wing. Struts on tail plane slope inwards on lower tail plane. Narrow fuselage when viewed from underneath. In front view there is one pair of struts either side of fuselage, sloping inwards on lower wing. This machine is a two-seater, and is generally camouflaged with its crosses painted inside white circles."

British Timber for Aeroplane Construction.

SPEAKING on the timber resources of the British Empire at the Royal Society of Arts on May 15th, Professor Groom said that though we had in the United Kingdom timber eminently suited for use in aeroplane construction, we were not aware of it at the beginning of the war. Last year, however, tests proved that not only in the South of England but also in the Highlands of Scotland the Scots pine could yield slow-grown timber that was equal to the highest demands ever made on wood, namely, use in vital parts of aeroplanes. As an example of the comparative effects of knowledge and ignorance he mentioned that Germany, having made thousands of tests and observations on the structure of Scots pine growing in various forests in that country, was able instantly to secure rich supplies of that wood of exactly the quality required for aeroplanes. But in this country, until the war began, we did not know the mechanical values of any kind of timber whatsoever growing in the United Kingdom.

AIRISMS

FROM THE FOUR WINDS.

AERIAL postal matters appear, at the moment, to be at sixes and sevens. In one breath almost, comes news of stoppage of an air postal service, the definite starting of a highly important service, the intention to start two others, and on the top of all, the re-affirmation by the British authorities not at present to join up with any scheme of a similar character. The stoppage is the service between Vienna and Kieff. A Budapest journal attributes this impending stoppage to the variability of the weather, to the fact that the aeroplanes used too much petrol, and finally to the improvement in the railway service. This elaboration of reasons reminds one of the lawyers' novel ingenious take-no-chances defence methods in which they set out that firstly, the defendant never ordered the goods; if he ordered them he never received them; if he received them and didn't order them, then he's not liable, and so on *ad infinitum*.

THEN there is the very heartening announcement from America of the actual inauguration last week of the Washington-Philadelphia-New York regular aeroplane mail service, a distance of about 220 miles. This has been under organisation, as readers of "FLIGHT" will remember, for

some little time, and the official send-off marks April 15th as a red-letter day in the annals of aviation.

PRESIDENT WILSON, members of the Cabinet, and other officials were present at the inauguration. Two military airmen, using 150 h.p. Hispano-Suiza motored Curtiss', started simultaneously from both cities, Relay machines were provided at Philadelphia.

EACH 'plane had a carrying capacity of 300 to 600 lbs., and upon the first trip the Washington pilot carried with him a specially autographed letter by President Wilson appealing for Red Cross funds. Postage for the new service costs a shilling an ounce, but, instead of occupying five hours in transit by the old railway route, the aeroplanes will deliver their freight in a little over two hours.

Before long it is anticipated that the service will be extended to other important routes.

IN regard to the proposed Norwegian service between Stavanger and Aberdeen, the policy of our Air Board is once more affirmed of biding a wee, as it is claimed that if aeroplanes are suitable for such services, they can be far better employed in war operations. For which reason similar proposals from France have been likewise temporarily turned down.

"Does not the fact that 'conscientious' objectors, when attacked, defend themselves by force, put them and their objection to fighting their country's enemies entirely out of court?"

If they are prepared to take up weapons of defence, as they did at Knutsford, why should not their exemptions be cancelled, as their plea that any resistance by force to violence is against their conscience is shown by their conduct to be arrant humbug?"

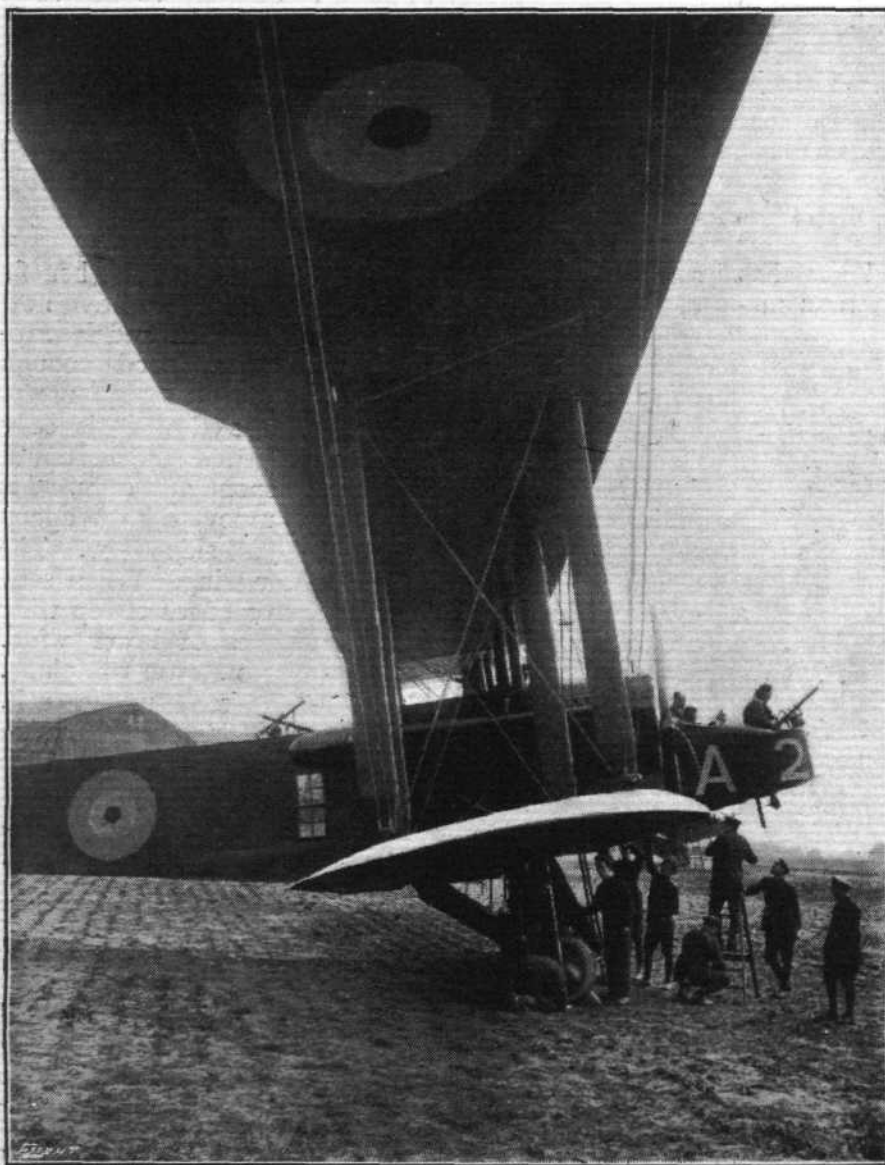
Thus writes Capt. R. Muirhead Collins, late R.N., from Bournemouth, regarding the "Conchies." And a very sound argument which most will applaud.

THE following is the promised further excerpt from the Trier Prisoners of War Camp Journal, *The Barb*, the swan song of which we re-printed last week:—

GEFANGENERS GO FOR A WALK.

As you all know, the British Officers at this camp are allowed to go for a walk each morning, and afternoon, with a "feld-webel" as escort. About the morning walk, which starts at 9 a.m., I am afraid I can give you very meagre information, as I regard time of the day, as, properly, part of the night. Other officers are similarly engaged; so many, in fact, that I believe this walk has been "washed out" altogether. I will endeavour to give you an impression of the afternoon walks, which commence at 2 p.m.

I want to be quite candid with you, so I will say right here, at once, that I do not go out to get exercise. In fact, nothing is more boring to me than walking for the sake of walking. No sir! I go to see the fair inhabitants of Trier; and why not? Surely some of them are worth seeing, and if I do, on any occasion, win a smile, I feel that my walk has not been in vain. To accomplish this desire, I don a decidedly "chic" cap, neither naval or military, and though perhaps it may not be becoming, there is no doubt that it attracts a certain amount of attention. Unfortunately, another officer, who really is good looking, wears a Belgian cavalry cap, which



(British Official.)
ON THE WESTERN FRONT IN FRANCE.—A "Baby" R.A.F. machine being tuned up before starting off for Germany with a load of bombs.

puts me completely in the shade, but when I know that he is coming for a walk I change my mind, and watch the football instead. As I have said before, the walk starts officially at 2 o'clock, and five minutes before that time, those of us who have not quite forgotten that we were once in the Army, begin to collect under the clock. We pass pleasant remarks to the "muddled oafs" on their way to play football, and we make imaginary mashie shots with our walking sticks.

At two o'clock someone says, "Is there anyone else coming?" but this query fails to get a reply. A minute or two later someone else says, "Shall we go now?" This also fails to elicit a response, and we take to golf again, until at last someone with more initiative, a man who it is easy to see is a born leader of men, says, "Come on, let's go," and sets off, followed by the remainder, until we reach the outside of the Chapel, about twenty yards away, when there is another halt until our escort arrives. He bows, collects our parole cards, counts the cards, and us, and finds he is one card short. A remark that we are playing without the joker evokes a hollow titter. He then counts us again, still finds he is one card short, and then some officer, who has been wandering about in a state of semi-coma, discovers that he has not given up his card. At last we are ready, and off we go across that wonderful courtyard, with the beautiful fountain in the centre, in through the swing doors, round to the left, and then to the right, into the entrance hall. Here the feld-webel disappears into a place called the "Wach-Stube," or Watch Room, familiarly termed the "wash-tub," by one of our funny ones, and again there is a check, but this time there is plenty to occupy our attention. Some of us look at the portrait of the Kaiser, which is hung there, whilst others scan the chromo-lithograph of German decorations, and some, I shall not mention any names though, admire themselves in the big looking-glass. After five minutes or so our escort returns, counts us once more for luck, and then we are really out in the street at last. Now comes the really serious problem which way shall we go? To the right, which leads to the town, and the "Sweet Young Things," or to the left, which leads to the hills. I may honestly tell you which way I want to go; I want to go to the right. After a tremendous argument, three or four start off in opposite directions, but immediately the feld-webel starts talking rapidly in German, and though no one understands a word of what he is saying, we know that we must all go together, and I am sorry to say the party to the right is always the weaker, and so off we go to the left and my walk is spoiled at the very start.

I take up my position in rear, which I have discovered is the best strategical point. Having at last got properly under way, the fellows in front endeavour to make up for lost time by setting off at a tremendous pace, which causes me to break into a jog-trot, which increases my rage, until we cross the river, pass the "Bahnhof" and turn to the right, when I begin to recover my normal demeanour, as this way leads to the town. But what is my horror, when I see the leaders turn to the left, and make for those terrible hills. However, there is no remedy and I must perforce follow, muttering and cursing the while, until I reach the top, where I fling myself down, absolutely "done to the wide." The next ten minutes I pass in trying to regain my breath, whilst the young "fliers," who only seem really happy when they are up a height, discuss the possibility of "dropping eggs," below. I presume they are thinking of taking up poultry farming after the war. On starting again I feel better, as surely the road here must be downhill, but, oh, no! these youngsters are not satisfied yet. They must find another hill, and when I feign a bad foot and commence to limp saying I can go no further, I get no sympathy, while on one occasion the feld-webel playfully drew his sword. This was not an example of German Militarism, but only a friendly way of telling me that he had "rumbled" me. However, everything comes to the man who waits, and finally we reach the town again and my hopes rise. We recross the river and just as we should turn round to the left, where there is a certain house that I "wot" of, where there is always someone who smiles at us. The feld-webel decides that it is late, and that we must go to the right, so once again I am foiled; my cup is full and not even the little girl, aged about eleven years, who smiles up into my face and says "Choklat" can please me. Eventually we reach the lager, and with a sigh of relief I swear by all the gods that never again will I go for a walk—until to-morrow.

Apropos the much discussed delay in the supply of aeroplanes from the U.S., a tribute of promising results was on Monday forthcoming from Mr. W. C. Redfield, Secretary of Commerce in the American Government, when speaking at the Canadian Club at Ottawa. There were critics, he

said, who related stories of failure. He asked the country not to worry about the reported failure of the American aeroplane factories. He saw one factory recently where the raw material was going in at one end and the finished product coming out at the other.

Some hustle, and reminiscent of Ford car organisation.

A FURTHER item of considered American organisation also carries with it food for reflection. President Wilson's first act after signing the "Overman" Bill, which provides for the re-arrangement and co-ordination of war activities, so the news runs, was to establish a separate organisation for aircraft production under the direction of Mr. John D. Ryan. Aircraft production will thus be taken entirely out of the hands of the military authorities.

AVIATION should easily score another "record"—hardly an enviable one, this time—in the half million fiasco of the projected aerial gunnery school at Loch Doon. According to the report of the Select Committee on National Expenditure by reason of this episode in connection with Loch Doon, "its name will be remembered as the scene of one of the most striking instances of wasted expenditure that our records show."

SMARTNESS can hardly surpass the happy inspiration of a South London newsagent on Tuesday last, who on his chalked "Contents" board had displayed: "Shakespeare up to date. 'Down to hell and say we sent you there.' Seven Gothas down."

THE way of the transgressor is hard in France. If Alphonse, feeling the urge of spring, picks up the baby Peugeot and runs Celestine out to the Bois Meudon on it, an irate sergeant of the town is liable to stop him, and peer into the petrol tank. Spirit the use of which is authorised by the Government is coloured an æsthetic shade of pink, and woe to the adventurer if his juice is limpidly white! But we seem to have heard of an interesting insect called "*Coccus*." Seventy thousand of him will make a pound of cochineal, and that would colour—how much petrol?

A "CERTAIN liveliness" is noticeable in the American papers now, due to the big Liberty Loan drive. If brevity is indeed the soul of wit, these terse little phrases should rank highly:—"BONDS OR BONDAGE," says one; "A GOOD BUY FOR YOU—A GOOD-BY FOR THE KAISER"; and again, in flaring type that stuns the retina—"COME ACROSS, OR THE KAISER WILL!"

HORN-HEADED son of toil, to his mate, as the ZZ-Q 99, all golden in the sun, cruises over Trafalgar Square: "There y'are, Bill, there goes my War Bond!"

THE American way with the pro-Boche is marked by a certain decision.

At Salt Lake City the other day a gentleman named Otto Rauschenburg was injudicious enough to utter strongly anti-Ally sentiments. A couple of resourceful and broad-minded citizens promptly deposited him in a flour-bin that yawned nearby, and producing two .38's, proceeded to shoot at his feet. The alien mind found these arguments convincing, and speedily recanted.

ONE of the members of the famous Lafayette Squadron tells an amusing story about Raoul Lufbery's exhibition flights in French Indo-China before the war.

The natives, who, naturally, had never seen a flying machine before, were moved to construct one for themselves. Clever Asiatic workmen, with bamboo sticks and strips of paper, ran up an aeroplane which, as far as looks went, gave points to the Western production. The Chinese "opposite numbers" of the A.I.D. had literally covered it with decorative script, to add to its potency. In place of the motor, they imprisoned in their machine a swarm of bees, which, stimulated by their close quarters, gave a very creditable imitation of a Gnome at high speed. To the disgust of the erectors, the machine refused to budge.

As an incitement to soldiers who might otherwise be tempted to abbreviate their names on applications for official war risk insurance, the American Government announces that the army has more than 100,000 Smiths, of whom 1,500 are William Smiths, 1,000 are John Smiths, and 200 John A. Smiths. There are 1,000 John Browns, 1,200 John Johnsons, and 1,040 George Millers. At present they are not *all* in the Flying Corps.

Moreover (oh Erin!) there are 262 John J. O'Briens, "of whom 50 have wives named Mary."

The British Air Service

"PER ARDUA AD ASTRA"

The Royal Air Force.

London Gazette Supplement, May 14th.

The following appointment is made at the Air Ministry:—
Staff Officer, 2nd Class.—Lieut. (Hon. Capt.) L. G. S. Reynolds, and to be Temp. Maj. while so employed; April 3rd. (Substituted for notification in Gazette of May 3rd.)

The following temporary appointments are made:—
Staff Officer, 1st Class.—Maj. J. H. Lidderdale, and to be Temp. Lieut.-Col. while so employed; April 6th. Maj. (Temp. Lieut.-Col.) P. C. Maltby, D.S.O., and to retain his temp. rank while so employed; May 1st.

Staff Officer, 2nd Class.—Maj. A. R. C. Cooper; May 4th.
Staff Officer, 3rd Class.—And to be Temp. Capt. while so employed:—D. L. Blumenfeld (Lieut., Essex R., S.R.), and is granted a temp. commission as Lieut. (substituted for the notification concerning this officer, in the Gazette of May 3rd); April 1st. Lieut. J. M. Watson; April 23rd. Lieut. R. MacFarlane; May 1st.

Staff Officer, 4th Class.—Lieut. J. S. Goggin; April 22nd.

Flying Branch.

Maj. (Temp. Lieut.-Col.) A. C. Barnby to be Temp. Lieut.-Col. while employed as Lieut.-Col. (Flying); May 6th.

Lieuts. to be Temp. Capt. while employed as Capt. (Flying):—T. C. Lowe; April 22nd. J. E. Pugh; April 23rd. J. W. Matthews, F. Williams; May 2nd. J. W. D. Leigh, M.C.; May 4th. (Hon. Capt. L.) G. S. Reynolds; May 9th.

E. R. Clayton is granted a temp. commission as 2nd Lieut.; April 11th.
Lieut. (Lieut., 5th Bn., N. Lan. R. (T.F.)) C. W. Pengelly relinquishes his commission on ceasing to be employed on account of ill-health contracted on active service; May 15th.

2nd Lieut. Y. A. McLean relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut.; May 15th.

Technical Branch.

A. F. Bruce is granted a temp. commission as Capt.; May 6th.

Lieut. L. Stones relinquishes his commission on account of ill-health, and is granted the hon. rank of Lieut.; May 15th.

Administrative Branch.

The following are granted temp. commissions as Lieuts.:—A. L. Grant; April 1st. J. A. Mackie; April 16th.

The following are granted temp. commissions as 2nd Lieuts.:—H. S. Adams; April 14th. H. V. Bullock; April 29th. B. F. Browne, J. R. Johnson, R. F. Pyke, H. R. Oldfield; May 1st. T. Bathurst, F. T. Beer, T. D. Bell, E. A. Berry, H. S. M. Coster, A. T. Davis, G. H. Davis, F. Drake, P. F. Ellisdon, E. C. Farman, E. Fort de Burgh Greenwood, J. Hartley, E. B. Haynes, C. H. Hare, H. A. Hobbs, P. C. Jones, H. T. March, W. J. H. Morgan, L. P. St. V. Nepean, J. Nelson, H. F. Phillips, H. G. C. Plumridge, W. S. Race, W. Ranger, J. Sidebotham, H. Sleight, H. S. Stevenson-Moore, W. A. Smith; May 3rd. S. Bishop, F. T. Dixon, P. H. F. George, W. A. R. Heaven, A. V. Jay, J. L. Malkin, L. E. Pool, T. Williams; May 6th. B. F. T. Hare; May 8th. G. H. Mewes; May 14th.

Medical Branch.

The following are granted temp. commissions as Capt.: H. R. Carter; April 23rd. S. J. A. Beale, H. Stedman; May 1st.

The following is granted a temp. commission as Lieut.:—D. Pennington; April 20th.

London Gazette, May 17th.

The following temporary appointments are made at the Air Ministry:—
Deputy Director.—Maj. F. J. Scott, and to be Temp. Col. while so employed. May 1st.

Staff Officer, 3rd Class.—Capt. J. D. Smith; May 1st.

Staff Officer, 4th Class.—And to be temp. Lieuts. while so employed:—2nd Lieut. D. B. Gunn, and Lieut. W. R. Simpson, and Lieut. F. C. Wild; May 1st.

The following temp. appointments are made:—Maj. Gen. Sir H. M. Trenchard, K.C.B., to be specially employed; May 8th.
Staff Officer, 1st Class.—F. R. Drake Bt. Lieut.-Col. in Army, Res. of Off., and is granted a temp. commission as Lieut.-Col.; May 3rd.

Flying Branch.

Capt. (Temp. Maj.) G. H. Blount, M.C., to be Temp. Lieut.-Col. while employed as Lieut.-Col. (Flying), seniority Apr. 17th; May 4th.

Lieuts. to be Temp. Capt. while employed as Capt. (Flying):—A. G. Goulding, M.C.; Apr. 26th. (Hon. Capt.) W. O. Redgate; Apr. 30th. E. W. C. G. de V. Glentworth; May 6th.

The following are granted temp. commissions as 2nd Lieuts. (A. and S.):—C. S. W. Hall, L. E. F. Dale; Apr. 11th. G. M. Ferguson; Apr. 21st. F. J. H. Bacon; Apr. 24th. F. G. Alpin; Apr. 25th. H. C. Armit, B. Brewer, L. A. W. Galloway, R. E. H. Gould, J. H. Holley, H. Randle, W. F. Smith, E. R. Walker, J. M. Walmsley, L. F. Wilson; Apr. 26th. J. Prescott; Apr. 30th. R. A. Hodgson; May 3rd.

The following are granted temp. commissions as 2nd Lieuts. (Observer Offrs.):—F. Lodge; Apr. 8th. E. E. Gowing, J. L. Smith, C. Taylor; Apr. 12th. E. Darby; Apr. 17th. F. W. Fox; Apr. 22nd.

Lieut. H. Ross relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of Lieut.; May 18th.

2nd Lieut. H. A. C. Martyn relinquishes his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut.; May 18th.

Technical Branch.

Capt. G. W. Williamson, M.C., to be Capt. (Tech.), from S.O.; Apr. 5th.

The following are granted temp. commissions as 2nd Lieuts.:—B. H. Lodge (Lieut., Lond. R., T.F.), and to be Hon. Lieut.; R. B. Robinson (2nd Lieut., Lond. R., T.F.); V. Smith (2nd Lieut., R.G.A., S.R.); A. H. Denly (2nd Lieut., Lond. R.); J. W. J. Bates (2nd Lieut., attd. D. of Corn. L.I.); Apr. 6th. G. M. Bell (2nd Lieut., Norf. R., S.R.); Apr. 12th.

2nd Lieuts. (Admin.) to be 2nd Lieuts. (Tech.):—W. T. Barber (from Admin.); Apr. 1st. B. B. Long (from Admin.), R. J. Hibberd (from Admin.); Apr. 6th. F. Simpson (from Admin.); Apr. 7th. F. L. G. Ghisi (from Admin.); Apr. 17th.

Administrative Branch.

The following are granted temp. commissions as Lieuts., and to be Temp. Capt. while employed as Admin. Capt.:—F. V. Bell (Temp. Lieut., New Armies), F. W. Romney (Temp. Lieut. in Army); Apr. 1st.

To be Temp. Capt. while employed as Admin. Capt.:—W. R. Kerr (Temp. Rapt. in Army); Apr. 1st, and is granted a temp. commission as Capt. H. M. myland (Qrmr. and Hon. Capt., Lond. R., T.F.), and is granted a temp. commission as Capt.; Apr. 12th. Lieut. G. J. M. Peel; Apr. 30th. Lieut. P. R. Hutchinson (substituted for notification which appeared in the Gazette May 7th); May 12th.

Lieut. H. F. W. Bailey to be Admin. Lieut. (from A. and S. Officer); Apr. 1st. Lieut. C. A. Stiles to be Admin. Lieut. (from K. B. Officer); Apr. 1st.

To be Temp. Lieuts. while employed as Admin. Lieuts.:—C. S. Bignell (Temp. Lieut., K.O.S.B.), and is granted a temp. commission as 1st Lieut.; 2nd Lieut. H. S. Counsell; G. M. Darragh (Temp. Lieut. in Army), and is granted a temp. commission as Lieut.; R. T. Kelly (Temp. 2nd Lieut., L'pool. R.), and is granted a temp. commission as 2nd Lieut. D. T. McGuire (2nd Lieut., Glos. Yeo., T.F.), and is granted a temp. commission as 2nd Lieut.; 2nd Lieut. G. B. Redgrave; Lieut. F. Worswick; Apr. 1st. C. D. Wooldridge (Lieut., Hants R., S.R.), and is granted a temp. commission as Lieut.; Apr. 3rd. C. P. Browne (Lieut., Notts and Derby R.), and is granted a temp. commission as Lieut.; Apr. 5th. A. R. Harris (Temp. Lieut. in Army), and is granted a temp. commission as Lieut.; Apr. 8th. F. W. Napper (Capt., R. Sussex R.), and is granted a temp. commission as Lieut. (Hon. Capt.); Apr. 24th. 2nd Lieut. R. Swan; Apr. 26th. 2nd Lieut. H. W. Procter; May 6th.

The following is granted a temp. commission as Capt.:—A. G. N. Belfield; May 10th.

The following is granted a temp. commission as Lieut.:—J. H. Evans (T. Lieut., A.S.C.); Apr. 26th.

The following are granted temp. commissions as 2nd Lieuts.:—C. O. Coton (Temp. Lieut. R. Ir. Rif.), and to be Hon. Lieut.; H. E. Evenden (Temp. 2nd Lieut., S. African Labour Corps); H. F. G. Findlay (2nd Lieut., Glasgow Yeo. T.F.); A. Hancock (2nd Lieut., Midd'x. R., S.R.); Apr. 2nd. F. C. Payne (Temp. 2nd Lieut., Labour Corps); Apr. 4th. H. Gamage; May 3rd. R. T. Smith; May 5th. G. E. Pyne; May 10th.

2nd Lieut. C. Llanagan relinquishes his commission on account of ill-health and is granted the hon. rank of 2nd Lieut.; May 18th.

2nd Lieut. J. B. Mann resigns his commission; May 18th.

2nd Lieut. J. J. O'Loughlin resigns his commission; May 18th.

Memoranda.

Lieut. R. H. Whittington to be Temp. Capt. (without the pay and allowances of that rank) whilst specially employed; May 9th.

Lieut. (Capt., Can. Army Pay Corps) J. G. Garneau relinquishes his commission on ceasing to be employed; Apr. 29th.

Royal Flying Corps (Military Wing).

London Gazette Supplement, May 14th.

The following appointments are made:—
Flight Comdr.—Lieut. E. D. Dent, Durham L.I. (T.F.), from a Flying Officer, and to be Temp. Capt. whilst so employed; Dec. 18th, 1917.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—W. S. Walton; Feb. 25th. D. G. Russell; March 6th. A. M. Dunstan; March 10th. J. D. Clemence, R. Z. Conner, A. C. E. Gregory; March 12th. W. McMahon; March 13th. F. W. Pearson, L. A. Fanning; March 15th. D. Bonnard, J. C. Gilchrist, R. S. McKim; March 16th. G. Hook; March 15th. A. C. M. Doucet; March 20th.

Balloon Officers.—Temp. Lieut. C. J. Reynolds, Glouc. R., and to be transfd. to R.F.C., Gen. List; Feb. 8th.

Equipment Officers, 2nd Class.—Lieut. H. I. Bell, Yeo. (T.F.), from the 3rd Class; Dec. 3rd, 1917.

3rd Class.—Temp. 2nd Lieut. (on prob.) M. F. Tomkins, Gen. List, and to be confirmed in his rank; Dec. 3rd, 1917.

General List.—The surname of Temp. 2nd Lieut. (on prob.) R. P. McHaffie is as now described, and not as in Gazette of March 16th. A. C. E. Gregory to be Temp. 2nd Lieut. (on prob.); March 7th.

Memorandum.—Maj. R. Cockburn, Suff. R., to be Temp. Lieut.-Col. while Comdt., Officers' Technical Training Corps, R.F.C., vice Temp. Lieut.-Col. F. A. Forde, Gen. List; March 15th.

London Gazette Supplement, May 15th.

General List.—To be Temp. 2nd Lieuts. (on prob.):—W. R. Allison, A. G. Baker, P. D. Box, P. J. Carr, G. A. Kelley, R. W. Kerr, J. M. Letson, H. St. J. Smith, W. P. Taltavall, E. W. Thomson, W. F. Thorne, H. C. Traver, J. W. Wilson; March 17th. J. W. Abray, F. W. Barker, J. C. Barker, L. S. Barlow, J. P. Bernigaud, J. W. Bishop, G. L. Blagrove, L. A. Brays, W. T. Brewster, J. V. Coupe, N. R. Craig, J. L. Killoran, R. F. Lynch, W. A. Macfarlane, J. S. McGeown, H. A. McGrath, L. H. McHarg, H. C. Meade, J. E. Muty, G. I. Neale, E. F. Newman, W. J. Prangle, S. Richardson, L. F. Ross, J. E. Sewell, H. Shone, T. T. Smith, R. T. Stewart, J. Thibaudau, G. A. Thompson, R. C. Tice, H. H. Towne, H. Wilton-Clark, G. R. Young; March 23rd.

London Gazette Supplement, May 16th.

The following appointments are made:—

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. W. Schermerhorn, J. B. Edington; March 8th. B. N. Garrett, E. Evans; March 12th. J. G. Hall; March 15th. C. W. Alloway; March 23rd. A. G. Levy; March 24th.

Special Appointment.—(Graded as a Park Comdr.).—Bt. Maj. I. A. S. Cooke, Conn. Rang., S.R.; March 23rd.

Equipment Officers, 3rd Class.—2nd Lieut. (Temp.) J. Buckthought, from R. Def. Corps (T.F.), and to be Temp. 2nd Lieut., R.F.C., Gen. List; March 29th. (Substituted for the notification in the Gazette of April 30th.)

General List.—Temp. 2nd Lieut. D. M. Mackie to be Temp. Lieut.; March 11th.

Flt. Sergt. F. V. Webb, from R.F.C., to be Temp. 2nd Lieut.; Jan. 28th.

To be Temp. 2nd Lieuts. (on prob.):—R. E. Coppinger; March 8th. W. B. Sullivan; March 9th. J. M. Rennie, Cdt. J. L. Rogers, from R.F.C.; March 10th. H. P. Stewart; March 11th. J. T. Mogan; March 12th. J. A. C. Allan, W. J. Cox, W. M. Crofton, C. H. Living, P. J. Mackintosh, J. S. McCallum, T. Nolan, G. M. P. O'Keefe, W. M. Standring, G. W. Stubbs, I. B. Williamson, N. W. Churchill, R. R. Nelson, J. Ostram-Taylor, J. C. Malcolmson, A. S. McPhail, F. E. Ross, T. E. McMann, E. W. C. Sharpe, H. Stamp, A. J. F. Ross, J. T. Pelletier, F. M. Stieber, W. A. Spence; March 17th.

London Gazette Supplement, May 17th.

Military Wing.—The following appointments are made:—

Flight Commander.—Lieut. A. G. Peace, Cent. Ontario R., Canadian Exped. Force, from a Flying Officer, and to be Temp. Capt. whilst so employed; Mar. 1st.

Flying Officer.—Temp. 2nd Lieut. (on prob.) G. B. Beatty, Gen. List, and to be confirmed in his rank; Mar. 15th.

Flying Officers (Observers).—Nov. 30th, 1917, with seniority from Aug. 31st, 1917:—Lieut. W. Guy, Arg. and Suth'd Highrs. (T.F.), and to be sec'd.; Lieut. W. J. Bethune, Cam'n. Highrs. (T.F.), from attd. Lond. R. (T.F.), and to be sec'd.; Lieut. J. Tocher, Cam'n. Highrs. (T.F.), and to be sec'd. Nov. 30th, 1917, with seniority from Sept. 28th, 1917:—Lieut. W. A. Horan, S. Afr. F.A.; Temp. Lieut. G. D. Marks, Durh. L.I., and to be transfd. to R.F.C. Gen. List; Temp. Lieut. H. W. Clayton, L'pool. R., and to be transfd. to R.F.C. Gen. List; Mar. 11th, seniority from Dec. 17th, 1917. Mar. 13th, seniority from Dec. 24th, 1917:—Lieut. R. G. Green, R. Berks R., S.R., and to be sec'd.; Lieut. R. Murdoch, K. O. Sco. Bord. (T.F.), and to be sec'd.; Temp. 2nd Lieut. J. W. Webb, Manch. R., and to be transfd. to R.F.C. Gen. List; Mar. 23rd, seniority from Jan. 7th.

Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank; Nov. 30th, 1917, seniority from Sept. 25th, 1917.—A. Simmons, A. Hartley, C. Gilham.

Assistant Instructors in Gunnery.—(Graded as Equipment Officers, 3rd Class.—From Flying Officers (Observers).—Lieut. D. McK. Finlayson, Cam'n. Highrs. (T.F.); Feb. 18th. Capt. R. H. Brewis, Lan. Fus. (T.F.); Feb. 19th.

Equipment Officers, 1st Class.—The notification regarding the undermentioned Officers should read "from the 2nd Cl.," and not as in the *Gazette* of Apr. 27th.—Temp. Lieut. A. L. Wilson, Gen. List; Lieut. S. Ransom, S.R.; Temp. Lieut. M. L. Horn, Gen. List.

2nd Class.—From the 3rd Class.—Lieut. J. N. Mearns, S.R.; Nov. 27th, 1917. Temp. Capt. W. E. Smith, Gen. List; Feb. 1st, and to be Temp. Lieuts. whilst so employed.—Temp. 2nd Lieut. D. Barron, Gen. List; Mar. 1st. Temp. 2nd Lieut. K. A. Smith, Gen. List; Mar. 21st.

Schools of Instruction.—**Schools of Military Aeronautics.**

Instructor.—(Graded as an Equipment Officer, 1st Class).—Lieut. (Temp. Capt.) R. O. C. Bush, R. Dub. Fus., an Equipment Officer, 3rd Cl., relinquishes his appointment and temp. rank on vacating his appointment; Mar. 23rd.

General List.—To be Temp. 2nd Lieuts. (on prob.).—G. B. Beatty; Mar. 7th. K. F. De Long; Mar. 12th. R. C. Guest; Mar. 13th. G. C. R. Hamilton, J. P. F. English, T. H. Garlick, G. E. Dowler, T. C. L. Etherington, A. L. Hudson, L. R. Haskell, H. B. Latimer, J. W. Murray; Mar. 17th. C. B. Gibson, W. T. Jones, R. L. Houlding, M. J. Hendrickson, K. B. Gibb, T. H. Delany, S. C. Henderson, A. B. Dunn, E. Fulford; Mar. 23rd.

A.G. and Q.M.G. Staff.

A.A. and Q.M.G.—Capt. (Temp. Lieut.-Col.) C. Fraser, M.C., N. Staff. R., from a Staff Officer, 1st Cl., R.F.C., graded as an A.A.G., and to retain his temp. rank whilst so employed; Jan. 28th.

D.A.A.Gs.—Temp. Maj. W. D. Long, Gen. List, from a Sqdn. Comdr., R.F.C.; Jan. 28th. Capt. C. M. Phillips, Suff. R. (T.F.), vice Capt. N. Rooke, High. L.I.; Feb. 23rd.

D.A.Q.M.G.—Capt. N. Rooke, High. L.I., from a D.A.A.G., vice Capt. C. M. Phillips, Suff. R. (T.F.); Feb. 23rd.

Special Appointments.

(Graded for purposes of pay as Staff Capt. whilst employed as Sqdrn. Comdr. of Cadet Wing, R.F.C.)—Capt. P. J. Whitty, R. Ir. Regt.; Oct. 31st, 1917. Capt. W. L. Blake, Norf. R. (T.F.), and to be sec'd.; Nov. 16th, 1917.

(Graded for purposes of pay as a Staff Lieut., 1st Class.)—Lieut. J. S. Kennedy, Bord. R., S.R.; Dec. 1st, 1917.

Attached to Headquarter Units.

Brigade Commanders.—And to be Temp. Brig.-Gens. whilst so employed.—Capt. (Temp. Col.) A. E. Borton, D.S.O., R. Highrs., from graded as a Group Comdr.; Bt. Maj. (Temp. Col.) P. L. W. Herbert, Notts. and Derby R., from a Group Comdr.; Jan. 28th. Maj. W. J. Bowker, C.M.G., D.S.O., Som. L.I.; Feb. 12th.

Staff Captains.—Capt. R. B. C. M. T. de Poix, Norf. R. (T.F.), from a Staff Officer, 3rd Cl., R.F.C.; Lieut. K. A. C. Creswell, R.F.C., S.R., from an Equipment Officer, 3rd Cl., R.F.C., and to be Temp. Capt. whilst so employed; Capt. G. Disney, Essex R., from Staff Off., 3rd Cl., R.F.C.; Jan. 28th. Capt. E. W. Dillon, R.W. Kent. R. (T.F.), and to be sec'd.; Feb. 11th.

Memoranda.

Bt. Lieut.-Col. (Temp. Brig.-Gen.) W. G. H. Salmond, D.S.O., R.A., to be Temp. Maj.-Gen.; Jan. 28th.



AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, May 14th.

"On the 13th inst. flying was only possible for a few hours during the early part of the day. In this period a great deal of work was done by our aeroplanes with the artillery, many reconnaissances were carried out, and 500 bombs were dropped by us on various targets. In air fighting two hostile machines were brought down. None of our machines are missing."

General Headquarters, May 15th.

"On the 14th inst. reconnaissances, artillery work, photography, and bombing were carried out by our aeroplanes. In air fighting six hostile machines were brought down and one other was driven down out of control. In addition, one German aeroplane was shot down by anti-aircraft gun fire and another by the fire of our infantry. Two of our aeroplanes are missing. Bombing was continued actively during the night, and 12 tons of bombs were dropped by us on the railway station at Lille, Menin, Chaumes, and Péronne, on billets at Bapaume, and in the area south of the Somme and on the docks at Bruges. All our machines returned. On the 15th inst. a successful raid was carried out by us on the railway station and sidings at Thionville (16 miles north of Metz). Twenty-four heavy bombs were dropped; and bursts were observed on the railway sheds and track and on the furnaces. The Carlshutte factory alongside the railway was hit four times. All our machines returned safely in spite of the heavy anti-aircraft fire experienced by them when over their objectives."

General Headquarters, May 16th.

"On the 15th inst. a great deal of work was done by our aeroplanes and observation balloons in conjunction with our artillery. Long-distance reconnaissances were carried out throughout the day, and a great many photographs were taken in the enemy's forward and back areas. Our bombing machines began their attacks at dawn and continued till dark, dropping in all a weight of over 24 tons of bombs. The targets included the railway stations at Tournai, Courtrai, and Chaumes, billets in the neighbourhood of Douai, Bapaume, Menin, and the River Somme, and the Zeebrugge-Bruges Canal. Enemy aircraft were active in the early morning and again in the evening, hostile scouts attacking our bombing machines with particular insistence. Twenty-five German machines were brought down and 12 others were driven down out of control. One other hostile aeroplane was shot down by machine-gun fire from the ground. Eleven of our aeroplanes are missing."

"After dark bombing was continued by our night-flying aeroplanes. Over 14 tons of bombs were dropped by us on the railway stations at Chaumes, Lille, and Douai, the enemy's billets at Péronne, Bray, and Bapaume, and the docks at Bruges. One of our machines has not returned. Early on the 16th inst. our aeroplanes set out to bomb the factories and railway station at Saarbrücken, in Germany. On crossing the lines they encountered 10 hostile scouts, and a running fight took place along the whole way to our objectives. By the time Saarbrücken was reached 25 hostile machines had collected and were attacking our aeroplanes with the utmost vigour. In spite of these attacks, 24 heavy bombs were dropped by us on our objectives. Several bursts were seen on the railway and a fire was started. Having attained their objectives, our aeroplanes concentrated their efforts on fighting the enemy's machines, five of which were brought down. One of our aeroplanes also was seen to be shot down. All our other machines returned."

War Office, May 17th.

"**Palestine Front.**—On May 7th our aircraft executed a successful bombing raid on Amman railway station on the Hedjaz railway, and on May 9th the enemy aerodrome and railway station in the vicinity of Jenin were attacked by our air service."

General Headquarters, May 17th.

"Great aerial activity prevailed on the 16th inst. Our observation balloons accomplished a large amount of registration for the artillery, and reported movements in the enemy's forward areas. Our aeroplanes carried out long-distance reconnaissances, artillery work, bombing, photography, and fighting throughout the day. Over 23 tons of bombs were dropped on important railway centres, aerodromes, and billets behind the enemy's lines. Fighting was intense in the early morning and in the evening. Thirty hostile machines were brought down, and five others were driven down out of control. In addition two German machines were brought down by anti-aircraft gunfire. Two hostile machines landed behind our lines, and their occupants were captured. Five of our machines are missing."

"During the night our night-flying machines dropped a further 10½ tons of bombs on different targets, including the railway stations at Lille, Douai, and Chaumes, billets in the neighbourhood of Bapaume, Péronne, and Rosières, and the docks at Bruges. The enemy's night-flying machines were also active. One Gotha aeroplane landed behind our lines, and the crew were taken prisoners. With reference to the report of the raid on Saarbrücken on the 16th inst., three hostile machines were driven down out of control on that occasion. The statement that five hostile machines were brought down is incorrect."

French.

"**Salonica.**—Allied airmen bombed the dépôts at Demirhissar and the aviation grounds at Resna. An enemy machine was brought down by British airmen near Livunovo."

Paris, May 15th.

"Two German aeroplanes were brought down on the 12th and two others on the 14th inst. During the night of the 14th one of our squadrons bombed the railway station of Chatelet-sur-Returnne, on which 7,000 kilograms of projectiles were dropped. The same night German aeroplanes bombed the region of Dunkirk. The damage done was of slight importance, and there were no victims."

Paris, May 16th.

"On the 15th, during the day our chasing aeroplanes, favoured by the fine weather, were extremely active. Seventeen German aeroplanes were brought down by our pilots, and an 18th was accounted for by the anti-aircraft defences. In addition, four enemy captive balloons were set on fire."

Paris, May 17th.

"During the night of May 14th-15th and during the day of May 15th numerous aeroplanes took part in the bombardments of the enemy zone. Thirty-six thousand kilogramme is (about 36 tons) of projectiles were dropped on the railway stations and aviation grounds of St. Quentin, Jassy, Flavy, Le Martel, Nesles, Ham, &c. A dump blew up at Nesles. Fires were observed at Guiscard, Le Chatelet, and Nesles railway station. On the following night 30,000 kilogrammes of projectiles were dropped on the same region and 10,000 kilogrammes on the regions of Amagne-Lucuy and Montcornet. During the day of May 16th four enemy aeroplanes were brought down and three others seriously damaged. During the night of May 16th-17th 35,000 kilogrammes of projectiles were dropped on the German railway stations and cantonnements in the region of Chaumes, Royes, Nesle, St. Quentin, &c. The explosion of a dump in the Bois de Champion and fires and explosions at Ecquilly, Villeselve, and Nesle railway station were observed."

Paris, May 17th.

"**Salonica.**—British airmen bombarded enemy establishments near Seres and Porna."

U.S.A.

Paris, May 15th.

"Two of our airmen to-day brought down three German machines. There is no other fact of importance to record."

Belgian.

Havre, May 15th.

"Numerous bombs were dropped by enemy aircraft on our cantonnements. One of our airmen brought down in flames a German balloon towards the Houthulst Forest."

Havre, May 16th.

"In the course of last night enemy aeroplanes bombarded our cantonnements, and an enemy airman dropped four bombs on the hospital of Hoogstade."

Havre, May 17th.

"German airmen, besides bombing the hospital of Hoogstade on the night of May 15th-16th, also dropped bombs the same night on the Belgian hospital at Calais. Ten persons were killed and 20 injured. Adjudant Demeulemeester brought down in flames his 10th enemy aeroplane above Houthulst Forest."

Italian.

Rome, May 13th.

"On the morning of May 12th one of our mixed squadrons of seaplanes and aeroplanes effectively bombed the submarine base of Cattaro. Enemy chasing aeroplanes rose in pursuit without result. Notwithstanding intense enemy fire, all our machines returned safely."

Rome, May 14th.

"Eleven hostile aeroplanes were brought down in air fighting. British airmen bombed successfully enemy hutments near Asiago."

Rome, May 15th.

"Our aeroplanes, notwithstanding the adverse weather conditions, dropped about 4 tons of bombs in the aviation grounds of the Piave valley."

Rome, May 16th.

"At dawn our seaplane squadrons arriving in succession over Pola found enemy chasing planes already up. Our pilots brought down two enemy machines and forced another to land. All our machines returned safely to their bases."

German.

Berlin, May 15th.

"Yesterday our airmen shot down five enemy captive balloons. Nocturnal aerial activity has been very lively on the fighting fronts. We have dropped numerous bombs on Calais, Dunkirk, and other rear munition dépôts and railway establishments of the enemy."

Berlin, May 16th.

"An extensive use of airmen on the fighting fronts led to numerous aerial engagements. We shot down 33 enemy aeroplanes, 14 of which were brought down by the chaser squadron formerly led by (the late) Cavalry Captain Baron von Richthofen. Lieutenant Windisch achieved his 20th aerial victory."



Casualties.

Lieutenant ARTHUR MONTAGU HEPWORTH, M.C., Royal West Surrey Regiment, attached R.A.F., who was killed on May 4th in his 32nd year, was educated at Eastbourne College. When war broke out he was at Penang, in the Malay Straits, where he had been for some time in a machine-gun section of the Malay States Volunteers. As soon as he was able to settle up his business affairs he sailed for England, and in January, 1915, was given a commission in the Queen's. In July, 1915, he went to Gallipoli with his battalion, and was in the landing at Sulva Bay and the battle of Chocolate Hill. He remained in the Peninsula till the evacuation, and was during the greater part of the time brigade staff captain. He was mentioned in despatches, and was awarded the Military Cross. On leaving Gallipoli his battalion went to Egypt, where he was given command of a company and the acting rank of captain, which he held for over two years. In September, 1917, he transferred to the R.F.C., and was posted to a squadron last March.

Lieut. CLIVE GOULDING MOORE, R.F.C. and R. Fus., who was posted as missing on August 15th, 1917, and is now reported to have been killed on that date while flying over the German lines, was the son of Mr. R. E. Moore, barrister, of the Middle Temple, and 42, Acacia Road, and Mrs. Moore. He was educated at Loudoun House School, N.W., and Radley College, whence he was to have passed on to Trinity College, Cambridge. But on the outbreak of war (which occurred on his eighteenth birthday) he at once decided to join the Army. After a few weeks in the Inns of Court O.T.C., he was granted a commission in the Royal Fusiliers, and went out to France with his battalion in November, 1915. After five months in the fighting line he contracted diphtheria and was invalided home. On recovering, he joined the R.F.C., got his "wings," and again went out to France. He met his death when engaged on the dangerous task of flying low over the German lines to disperse with machine-gun fire the enemy troops massing for a counter-attack. He was a keen oarsman, and while at Radley won several rowing trophies, including the "silver sculls." He was a corporal in the school O.T.C. and an excellent shot, and both in 1913 and 1914 was a member of the team chosen to represent the school at Bisley.

Lieut. RICHARD CURTIS WADE, R.F.C., now reported killed in action on February 26th, aged 19, was the youngest son of Mr. and Mrs. H. S. Wade, of Beckbury House, Shrewsbury. He joined the King's Shropshire L.I. in September, 1914, and served for 13 months at the Front. He was gazetted to the R.F.C. in September, 1917, and returned to the front the same month. His fellow officers speak of him with affection and praise of his courage and devotion to duty. His two elder brothers joined in 1914, and have served in France and Mesopotamia.

Lieut. WESTROPP ORBELL PEYTON WINMILL, Bedfordshire Regt., killed on March 22nd, aged 23, was the elder son of the late George Winnill and Mrs. Winnill, Bedford. He was educated at the Bedford School, which he entered in 1903 and left in 1911 to join the engineering department of the Great Eastern Railway. When war broke out he enlisted in the Essex Regt., and in January, 1915, was nominated by the Army Council to the Royal Military College, Sandhurst. Passing out in May, he was gazetted to the Bedfordshire Regt., and went to France in June, 1915. After seven months in the trenches he was attached to the R.F.C., and was out there five months as observer. In June, 1916, he came home and gained his pilot's certificate in November, 1916, and took a course in aerial gunnery. On account of his nerves he was told that he must not fly for some time, and was appointed an instructor. In October, 1917, as the medical board still would not permit him to fly, he asked and obtained permission to rejoin his old regiment, and went back to the Front in December, 1917. Lieut. Winmill married in 1917 Myfanwy, daughter of Mr. R. Clarke and the late Mrs. Clarke, of Reading.

Second Lieutenant MORTIMER CRANE, R.A.F., who was

accidentally killed while flying in this country a few days ago, was the only child of Mr. T. I. Crane, a well-known Philadelphia business man. He was educated at Yale University, and although under age, attempted to join the Canadian Forces before the United States entered the war. He joined the American Army immediately on the declaration of war, and was in training for some time at Niagara; but desiring to get into active service as soon as possible, he obtained his discharge, joined the British Air Forces in Canada, and, after training there and in Texas, was sent to England. Lieutenant Crane's family being very old friends of Mr. Benjamin Talbot, his body was taken for burial at North Otterington Church, adjoining Mr. Talbot's estate.

Capt. FRANCIS YARDE FOLEY, A.S.C., attd. R.A.F., who died on May 12th at the British Red Cross Hospital, Netley, of illness contracted on active service in Gallipoli and Egypt, was the third son of R. Y. Foley, of Dodington, near Bridgewater. His age was 27.

Capt. A. A. C. GARNONS-WILLIAMS, South Wales Borderers, attd. R.A.F. (since March, 1917), who was killed while flying on May 14th, was the only son of the late Capt. A. H. Garnons-Williams, R.N., and Mrs. Garnons-Williams, of Oakhill House, Horsham, Sussex. On the outbreak of war he joined the Motor Cycle Despatch Riders. In October, 1914, he was gazetted to the South Wales Borderers. He was seriously wounded in the second battle of Ypres, in May, 1915, returned to France, September, 1915, and went through the battles of Loos and the Somme. He was awarded the Military Cross in September, 1916.

Lieutenant WILLIAM BARTON HUGHES, R.A.F., who was accidentally killed while flying on May 17th, was the elder son of Professor and Mrs. Alfred Hughes, 29, George Road, Edgbaston, aged 18 years.

Lieutenant JOHN BASIL ROBERT LANGLEY, Royal Air Force, aged 29, who was killed while flying on May 15th, had his "wings" in June, 1916, and was graded flight commander while employed at a flying school in August, 1917. He was the eldest son of the Rev. John and Mrs. Langley of North Wroxall, Wiltshire. He came over with the 19th Alberta Dragoons in the first Canadian contingent, with which he served in France, and subsequently joined the R.F.C. For some time he was an artillery observer at the front. He came home, and showing extraordinary facility in handling an aeroplane became almost at once an instructor in special flying. Mr. Langley always maintained it was possible to roll a particular make of machine to the left, and in support of his contention had already twice successfully performed this evolution, but on the third attempt his machine nose-dived and crashed. He was a son-in-law of Sir Oliver Lodge, whose daughter, Lorna Leslie, he married on July 28th, 1917, and left a son 15 days old.

Lieut. JOHN STONE WILLIAM LORD, R.A.F., and LIEUT. LESLIE GEORGE, R.A.F., both of Sydney, New South Wales, killed on May 12th, near Winchester, had together served in Egypt with the Australian Light Horse, and afterwards transferred to the R.F.C.

Lieut. L. F. DEREK LUTYENS, R.A.F., who was killed while flying in Surrey on May 8th, was the eldest son of Mr. Lionel Lutyens, of Bedford Park, W. He was educated at Elstree and Aldenham, and enlisted in the Royal Fusiliers (10th Battalion) in August, 1914, shortly afterwards obtaining his commission in the same regiment. He went to France with his regiment in 1915, and remained there as bombing officer until after the battles of Pozières and La Boisselle, when he transferred to the R.F.C. He fought many engagements as "observer," and was eventually chosen as a pilot for an experimental squadron.

Second Lieutenant C. M. SANKEY, M.C., The Buffs, attached R.A.F., who was accidentally killed whilst flying on May 15th, aged 21, was the only son of Major and Mrs. W. Sankey, of Woudham, Tring Avenue, Ealing, and dearly-loved brother of Mrs. Charles Cock.

Lieut. ROLAND W. TRUBRIDGE, R.A.F., who died of wounds on May 6th, was the son of Mr. and Mrs. H. W. Trubridge, formerly of Gosforth, Newcastle-on-Tyne.

Major HERMAN WALTER VON POELLNITZ, Lincolnshire Regiment and R.A.F., who was fatally injured in the motor accident abroad on May 17th, was the only child of Baron and Baroness Poellnitz. Blacklee, Sidcup, and grandson of the late Sir Walter Elliot, K.C.S.I., of Wolfelee, Hawick, aged 27.

Married.

Captain WALTER GORDON COPE, R.A.F., only son of Mr. and Mrs. Walter C. Cope, "Castle House," Regent's Park Road, Finchley, was married on May 15th by special licence at All Saints', Child's Hill, to DORIS LUCY, the third daughter of Mr. J. E. SHEPARD, and of the late Mrs. Shephard, "Westerman," West Heath Drive, Hampstead.

EDWARD LYNDUP DICKIN, late R.F.C., younger son of the late Rev. W. J. Dickin, was married on May 17th, at St. Mary's, Reculver, Kent, to MARGARET ROSE (MARJORY), eldest daughter of Lieutenant-Colonel G. REAVELL, Northumberland Fusiliers, and Mrs. Reavell.

Captain JOHN W. C. DOBBYN, R.A.F., eldest son of the late John S. Dobbyn, M.D., F.R.C.S., Deputy-Surgeon-General, R.N., of Streatham, was married on April 30th, at St. Andrew's (Parish Church), Rugby, to IRIS, only daughter of Frank E. BEDDARD, F.R.S., D.Sc. (Oxon), of London.

Lieutenant COLIN H. GARDNER, R.A.F., son of Mr. and Mrs. W. M. Gardner, of Bradford, was married on May 18th at St. John's, Kensington, to EDITH AIMÉE, youngest daughter of Mr. and Mrs. FURBER, of Kensington.

Capt. J. G. SELBY, M.C., R.F.A., R.F.C., son of Mr. and Mrs. H. T. Selby, of Northfield, Bromley, Kent, was married on May 15th, at the Chapel Royal, Savoy, to DOROTHY, younger daughter of Mr. and Mrs. S. BARTRUM, of Coniston Bromley.

Lieutenant-Colonel EDWARD TENNANT, M.C., Scots Guards and R.A.F., eldest son of Francis Tennant, of Innes House, Morayshire, and grandson of the late Sir Charles Tennant, Bart., of the Glen, was married on May 22nd at Simla, to GEORGINA HELEN, eldest daughter of General Sir George KIRKPATRICK, K.C.S.I., C.B., Chief of the General Staff, India, and granddaughter of the late Sir George Kirkpatrick, K.C.M.G., Toronto, Canada.

To be Married.

The marriage arranged between Captain CHARLES COOK, R.A.F., and Miss EVELINE DISNEY will take place (leave permitting) on Saturday, June 8th, at 2.30, at St. Margaret's, Westminster. All friends will be welcome at the church.

The marriage arranged between Major W. W. HIGGIN, R.A.F., and Miss OLIVE EARLE will take place quietly on Tuesday, June 11th, at 2 p.m., at St. Nicholas' Church, Burton, Cheshire. Owing to the war no invitations will be sent, but all friends will be welcome at the church and afterwards at The Old Hall, Puddington.

The marriage arranged between L. GODFREY LOWE, R.A.F., elder son of Louis I. Lowe, of Estancia El Plata, Province of Buenos Aires, Argentina, and KATHLEEN BERTHA HAIG, third daughter of Colonel W. W. WARD, late East Yorks Regiment, and Mrs. Ward, Baston Lodge, St. Leonards-on-Sea, will take place on June 4th, at 2.15, at St. John's Church, St. Leonards.

Items.

The Right Hon. Sir WILLIAM WEIR, Secretary of State for the Royal Air Force, had an audience of the King on the morning of May 15th at Buckingham Palace.

It was announced in the *Court Circular* on May 16th that Lieutenant DUNCAN GRINNELL-MILNE, Royal Fusiliers and R.A.F., had the honour of being received by the King at Buckingham Palace on that date.



CORRESPONDENCE.

Official Methods—How Not to Win the War.

[1960] I notice in your Journal references, from time to time, regarding the "organisation" of the Air Service.

I should like to cite my own case, out of which perhaps some moral might be drawn. I was born in England in 1875, and went to Australia (Queensland) in 1892, and have resided there ever since. I took up engineering, and worked at it until the time when I enlisted—November, 1917—occupying positions as foreman and superintendent and draughtsman, my last position being travelling superintendent for the Intercolonial Boring Co., Ltd., of Brisbane, which I held for seven years.

As my financial position seemed secure, I offered my services to the Recruiting Committee and joined up in Brisbane, expecting and hoping that my technical training would be of some assistance. I went through the usual depot training, and was then allotted to an infantry reinforcement. I called attention to the fact that the Allies were supposed to want skilled men, and was then transferred to a technical unit and put on the garage. I did a fortnight there without tools, and intended to apply for a transfer back to the infantry, but was sent to Laverton (Vic.) to the Australian Flying Corps. I was in camp there and was called up for a farcical "test," which consisted of filing a hex. up out of round stock and the answering of a few elementary questions. I was then mustered as "Machinist fitter," although I had not had a chance to show any specimen of handicraft except the bit of rough filing mentioned. References were never asked for, and if a man said that he was a competent turner or mechanic he was mustered as that, although many so

treated do not know the names of the tools, much less their use. After this two-hour test my time was taken up in pushing a broom or washing dishes and general fatigue work until we sailed.

On arrival here we were all expecting a good weed out, so that we could get re-classed and the best of the draft start in at once. However, it seems that all, irrespective of experience, must start off scratch again. The trained man is treated as a tyro and stands on the same footing.

A number of us, myself included, have had a fair amount of experience in internal combustion engine practice, both stationary and motor work, and we flatter ourselves that we understand first principles of theory and design. We have had machine tool practice, etc., but, as far as I can see, it will be months before we are able to put it into practice.

I daresay it is a hard matter for the Englishman to grasp all that the Australian has to do, but I have had to forge springs, steering arms, gear strikers, and even gear wheels, and do all the machine work myself, besides hardening and tempering, where you would be able to buy duplicate parts here, or get them duplicated at a few days' notice. I do not say it in a spirit of braggadocio, but there is no doubt that the average Australian is more resourceful than the average Englishman—he is made so by force of circumstances. My own experience is not an isolated case; there are hundreds similar. Now that I have got this off my chest I will conclude.

"M."

May 11th.

SIDE-WINDS.

It was a happy thought of the Regent Carriage Co., Ltd., to arrange with the Air Board for a Lantern Lecture to be given on Aircraft Construction, which took place in the large hall of the Fulham Town Hall on Tuesday, the 14th inst., under the genial presidency of Mr. Myles Scarff. The lecturer, Lieut. George, was, we understand, acting as a substitute for Capt. Ewart, who was detained on important Service work. This change did not detract from the interest of the lecture, as Lieut. George, avoiding all technicalities, spoke for over an hour on the various machines and their constructive properties, use and abilities, in such a way that the most lay members of a very large and highly appreciative

audience were interested from the very beginning. He made the most of his opportunity, while lauding the doings of the boys at the Front, to press upon the workers at home the importance of their seconding in every way, by close attention to the output, the efforts that are daily and hourly set forth by the Air Force, who are now so successfully operating in all parts of the world. If we are any judge of the enthusiasm that this lecture created on the particular occasion, we strongly suggest that similar arrangements should be made in various parts of the country under the auspices of firms who are interested at present in the Aeronautical Industry.



At the British Caudron Athletic Club Sports.—Three prominent workers for the good of the club. Left to right: Messrs. A. Ferrier, Chairman, Sports Committee; R. H. Simpkin, London Manager, Caudron Co.; and Jack Follett, Works Superintendent.

ON Saturday last the Sports Ground of the British Caudron Social and Athletic Club was opened for the summer season by Colonel Alderman Pinkham, J.P., M.B.E. The ground, which was inaugurated last October, has proved a boon to Caudron workers and it has now been laid out for cricket, tennis and bowls. The grounds are in excellent condition, and the arrangements reflect the greatest credit on Mr. James Wilson, the hon. secretary. The pavilion has been re-decorated and excellent refreshment can be obtained. Apart from the games, the occasion was marked by a splendid concert, under the direction of Mr. Ross Oliver, and the entertainment was shared by some 60 wounded soldiers, the guests of the Caudron employees.

COMPANY MATTERS.

The Jackson Aircraft Co., Ltd.

THE directors have declared an interim dividend at the rate of $7\frac{1}{2}$ per cent. per annum, free of income tax, on the preference shares. Mr. J. L. Curtiss has been appointed secretary in the place of Mr. Herbert Bennett, who has resigned. The registered offices of the company are at 215, Mare Street, Hackney, E.8.

NEW COMPANIES REGISTERED.

AERONAUTICAL CONSULTANTS, LTD.—Capital £1,000, in £1 shares. Under agreement with E. St. Clair Duncan and A. J. Swinton, manufacturers of and dealers in mechanical, electrical and general engineering appliances, seaplanes, floats and accessories, aviation and aeronautical instructors, &c.

BRITISH AMERICAN AIRCRAFT INVESTMENTS, LTD.—Capital £1,000, in 1,500 participating preference and 500 ordinary shares of 10s. each. Manufacturers of and dealers in aerial conveyances and components, owners of hangars, garages, sheds and aerodromes, &c.

R.A.F. Sports.

THE sports of the officers and men of the Royal Air Force attracted a large number of people to Ascot on Whit Monday. There were twenty-six events on the programme, including a six-mile Marathon, which started at Windsor. There were twelve competitors for this race, which was won by Air Mechanic Pratt, of Greenwich, in 38 min. 22 sec. Air Mechanic Summons, of Ascot, was second. Captain F. de B. Collenette, who won the mile handicap at scratch in 4 min. 43 3-5 secs., was in the Aeronautical School team, which came home first in the mile relay race, doing the distance in 3 min. 59 4-5 secs. Air Mechanic Tear, of Ascot, was first in the 440 yards, and also won the cup presented by Viscount Churchill for the $2\frac{1}{2}$ miles race.



At the British Caudron Athletic Club Sports.—Col. Alderman Pinkham, who opened the sports ground, playing bowls with wounded soldiers.

PUBLICATIONS RECEIVED.

Practical Flying: Complete Course of Flying Instruction. By Flight Commander W. G. McMinnies, R.N. London: The Temple Press, Ltd. Price 3s. 9d. net.

The Annual Report of the Board of Regents of the Smithsonian Institution for 1916.—Washington, D.C., U.S.A.; The Smithsonian Institution.

The Athenæum Subject Index to Periodicals: 1916. London: Science and Technology. London: The Athenæum, Bream's Buildings, Chancery Lane. Price 10s. net.

The Year Book of Wireless Telegraphy. London: The Wireless Press, Ltd., Marconi House, Strand, W.C. 2. Price 6s. net.

Aeronautical Patents Published.

Applied for in 1917.

The numbers in brackets are those under which the Specifications will be printed and abridged, &c.

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4,069. C. Prost. Flying machines. (115,060.)

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IN order that "FLIGHT" may continue to be published at the usual time, it is now necessary to close for Press earlier. All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages liv, lv, and lvi).

FLIGHT

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ABROAD.

	s.	d.
3 Months, Post Free..	8	3
6 " " " " " "	16	6
12 " " " " " "	33	0

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